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ABSTRACT

A 21-item measure of pre-school children's "self-concept as a learner," known as the Behavioral Descriptor Scale, was developed and evaluated. The child's teacher and an assistant were required to complete the scale for the child at two different times. Satisfactory levels of reliability were gained for each scale item. Test-retest reliability based on a sample of 223 children and 43 teachers was 0.82, while concurrent validity between the child's teacher and the pre-school assistant (or occasionally a co-teacher) was 0.72. Significant sex differences were found, with girls being more positively evaluated. Correlations between the scale and intelligence and social class, based on a sub-sample of 46, were not significant. Factor analysis revealed the existence of four factors which together accounted for 54.9% of the total variance. In an attempt intended primarily to assess the validity of the behavioral descriptor scale, two other scales were developed and administered. A behavior checklist failed to provide any useful information, but a projective scale administered to a small sub-sample showed some promise. (Author/SS)

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DEVELOPMENT OF A SELF-CONCEPT SCALE

FOR USE IN
PRE-SCHOOL AND PRIMARY SCHOOL

A report to the Education Research and Development Committee

by

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Summary

A 21 item measure of pre-school children's "self-concept as a learner" was developed and evaluated. The scale, which requires the child's teacher to choose one of five statements couched as behavioural descriptors for each item, showed satisfactory levels of reliability. Test-retest reliability based on a sample of 223 children and 43 teachers was 0.82, while concurrent validity between the child's teacher and the pre-school assistant (or occasionally a co-teacher) was 0.72. Significant sex differences were found, with girls being more positively evaluated.

Correlations between the scale and intelligence (PPVT), and social class based on a sub-sample of 46 were not significant.

Factor analysis revealed the existence of four factors which together accounted for 54.9% of the total variance. Mainly in an attempt to assess the validity of the behavioural descriptor scale, two other scales were developed and administered. A behaviour checklist failed to provide any useful information, but a projective scale administered to a small sub-sample showed some promise.

Generally, it has been difficult to assess the validity of the scale, but what information is available is not contrary to the scale being a valid measure of self-concept as a learner.

Suggestions for further development of the scale are included.

CHAPTER I : INTRODUCTION

In recent years the importance of the first eight years of development for the individual's behaviour as an adult has been increasingly recognised. Much research has been focussed on these years, but only a small minority of this has been concerned with the child's behaviour in school, and where there has been such research it has tended to concentrate on cognitive rather than socio-emotional variables. In particular, there has been little research on the role of the child's self-concept as a learner as a mediator of the child's scholastic progress.

A likely reason for so little effort in this area is the lack of suitable measuring instruments for self-concept as a learner, and for such closely related variables as self-esteem and locus of control for such young children.

The aim of the present research was to develop a measure of self-concept as a learner using pre-school teachers as raters of their pupils' behaviour, and if possible to develop other measures of self-concept as a learner which might have an independent usefulness, but which would in any case aid in the assessment of the validity of the primary measure. The primary measure was designed to be used in a pre-school setting, and to be suitable for children in the age range of three to five years.

Such a measure, in conjunction with other measures suitable for use with school age children, would enable the effect of entry into educational institutions on the child's self-concept as a learner to be assessed, and to study how differing levels of that variable are associated with pupil behaviour and scholastic achievement.

A long term aim would be to describe educational settings which are beneficial to children with differing levels of self-concept as a learner and who differ in other learner characteristics.

2.1 Self-Concept and Achievement

Interest in development during the early childhood years has heightened over the past two decades. During the post-sputnik period there has been a considerable emphasis on cognitive and scholastic achievement. Bloom's (1964) hypothesis that 50% of adult intelligence had developed by age four emphasised the need to make the most of the period prior to school entry.

The most ambitious attempt to dramatically raise levels of cognitive and scholastic functioning was Operation Headstart in the United States of America. This was motivated by egalitarian principles, as well as the more pervasive trend, and disadvantaged groups selected on the basis of socio-economic status (SES) and ethnicity became the main targets.

Many programs (Bereiter and Engelman, 1966; Deutsch, 1967) were aimed at correcting and/or preventing the development of language deficits, with Bernstein's (1961) hypothesis representing the logical and philosophical underpinning for the intervention procedures.

When evidence began to accrue that the measured benefits from these programs did not long persist after children entered primary school, new programs emerged based on earlier intervention (e.g. Homestart) and continuation of the Headstart approach into the early years of the primary school (Follow Through).

The Coleman Report (1966) which called into question the effectiveness of schools to counteract the influence of different home backgrounds led to many rejecting educational programs as a viable means of attaining equality of opportunity. However, other research, and other approaches towards achieving greater equality of educational opportunity have been proceeding and more realistic approaches now seem possible.

One approach has been to reject the simplistic explanation of language difference offered by Bernstein (e.g. Labov, 1970; Wells, 1977) and to suggest other aspects of the communication process than restricted or elaborated codes (e.g. Donaldson, 1978; Robinson, 1978 ; Wells, 1979). The application of these new approaches may represent important advances.

An alternative approach to the conceptualization of the consistent differences in scholastic achievement between children of low and middle SES, and between children of different ethnic groups is less well developed, but has a wealth of evidence to support it. This is the approach which sees the child's emerging concept of his ability to cope with learning as an important determinant of his eventual success as a learner.

The notion of self-concept is not a new one, since James (1890) and Mead (1934) wrote extensively on the topic. More recently the work of Coopersmith (1967), La Benne & Greene (1969), Purkey (1970) and Gergen (1971), have brought the notion of self-concept into the educational arena.

Coopersmith and Feldman state that "The self concept consists of the beliefs, hypotheses and assumptions that the individual has about himself (1974, p. 198)". and this may be taken as a simple definition of self-concept.

There is a wealth of evidence that self-concept is associated with scholastic performance (Brookover, Thomas & Paterson, 1964) although the direction of any possible causal relationships is not always agreed.

Before proceeding to a detailed analysis of self-concept, it seems worthwhile to consider some related constructs, particularly "locus of control" and "self fulfilling prophecies".

As early as 1961 Bialer established that a relationship existed between locus of control and achievement with those having a more internalised view tending to reach higher levels of achievement. More recently evidence has begun to accumulate (Clifford & Cleary, 1972; Phares, 1976) that locus of control has similar powers of predicting scholastic achievement to that of intelligence. Without wishing to suggest that the correlation between locus of control and scholastic achievement is the result solely of the child's views concerning his ability to influence the environment affecting his level of achievement, rather than being the result of continuous interaction between the two processes; evidence concerning the early emergence of effectance motives (e.g. Lewis & Goldberg, 1969) suggests that the extent to which locus of control is perceived as internalised when the child is introduced to formal learning tasks may be a significant determinant of success at learning. Whether

the child retains this internal locus of control, and in particular control with respect to scholastic achievement, will depend in part on the objective level of achievement, but more especially on the perceived level of success.

The mechanism by which an internal locus of control and scholastic achievement interact and partly determine each other is that an internal locus leads the child to tackle tasks confidently and to be prepared to expend energy on their mastery. These two factors increase the likelihood of success, and this success then tends to reinforce the view that the child is able to master the environment.

While the notion of a self-fulfilling prophecy in learning does not owe its origin to Rosenthal and Jacobson (1968), their research has popularised the notion. They concluded that teachers' beliefs about the intellectual potential of their pupils, although having no basis in reality, could result in pupils showing changes in ability in line with these beliefs. Although their research methods have been strongly criticised (Thorndike, 1968) and there has been some failure to replicate their results (Claiborn, 1969; Fleming & Anttonen, 1971) other research (e.g. Palardy, 1969) has shown possible links between teachers' beliefs and the achievements of their pupils.

In a longitudinal study of the relationship between teachers' expectations and children's performance using a cross-lagged panel analysis Crano and Mellon (1978) concluded that teachers' expectations were more influential in changing children's performance, than children's achievements were in changing teacher expectancies. This is perhaps the clearest evidence to date.

Rist (1970) has illustrated some of the mechanisms by which expectancy effects may operate, and Peters (1971) has shown that even short term manipulation of pupil-teacher interactions may have profound effects on children.

While definitive evidence on expectancy effects is still lacking, reviewers of data collected (Braun, 1976; Good & Brophy, 1974; Pelling & Pringle, 1978) believe there is reason to keep an open mind on the question.

If teacher expectancy effects do operate and certain characteristics of lower SES children and those from low status ethnic groups

create negative expectancies in their teachers such expectancies may be powerful determinants of scholastic achievement among lower status children.

It well may be that classroom interaction analysis which focusses on interactions between the teacher and particular pupils, rather than between the teacher and pupils in general, would lead to a more effective isolation of teacher characteristics particularly conducive to learning than research focussing on the more global classroom behaviour of teachers has shown to date (e.g. Rosenshine, 1971).

While much of the foregoing research is germane to the consideration of what constitutes an appropriate measure of self-concept as a learner for pre-school children, naturally, that which focusses on self-concept and its relationship to learning must be the main basis.

All views concerning the development of an individual's self-concept available to the writer (e.g. Coopersmith & Feldman, 1974; Gergen, 1971; Wells & Marwell, 1976) stress that the interactions which the individual has with other persons, and personal experiences of success and failure are its major determinants.

The other persons with whom the individual comes into contact, evaluate the child's characteristics and behaviour, and these shape her self-concepts, her views concerning her strengths and weaknesses, her abilities and her value to other people. As the circle of individuals influencing the child increases, and as a concept of self develops, the views of some persons will be of greater significance, and thus the views of some individuals will tend to be discounted.

Similarly, as the individual's concept of herself becomes more developed, some aspects of self will be more valued than others, and failure in significant areas will represent a serious threat to the individual's self-concept, while failure in other areas will be of little consequence. For example, a child's abilities as a learner may be of central concern to an individual, or of little significance. The salience of self-concept as a learner will depend on such factors as the importance of learning conveyed to the child by significant others, the extent to which the child has perceived herself as having previously mastered learning, and the extent to which the requirement to learn occupies time and consumes energy for the individual. It seems likely then that if a child enters pre-school, or any other educational

institution, knowing that her parents value learning, having perceived that she has had considerable prior success in learning, then self-concept as a learner is likely to be a significant component of a more global self-concept, and the child will strive to maintain that view of herself. Perceived success will tend to maintain and develop this aspect of self-concept, and to further shape the self-concept, and particularly those related to learning, including motivation.

Where parents, and significant others, are not perceived to value education highly and/or where the child perceives herself as an unsuccessful learner, she will be likely to invest less effort in mastery, and to have a lower likelihood of success. While those who manage the child's learning at the earlier stages of education may do much to enhance the child's self-concept as a learner, if the child experiences failure for several years, a low self-concept as a learner very resistant to change is likely to develop.

Similarly, if a positive self-concept as a learner develops, such a concept will be difficult to change. Subsequent failure experiences may certainly modify the self-concept as a learner, but it is also likely to call forth a high level of effort to maintain the self-concept, or result in modifications more specific than a debasing of self-concept as a learner. For example, the inability to master a particular subject area may be internalised, rather than the perceived ability as a scholar devalued.

The earliest years of institutionalised education are therefore crucial for the development of self-concept as a learner, since these early influences are likely to shape the general form of this conception. While, a favourable self-concept as a learner prior to entry to the pre-school will enhance the likelihood that such a concept will be well formed a year later, the absence of such a positive pre-cursor does not entail the absence of very positive views concerning learning ability at the end of the pre-school year. There are two major reasons for this, the comparatively nebulous view of self-concept as a learner held at this time, and the nature of the pre-school environment.

The pre-school environment is characterised by tasks which are intrinsically interesting, and to which there are no right or wrong answers. Thus most children will join in activities which can produce

a sense of achievement, either intrinsically, or through praise from the teacher, or other adults within the pre-school, from peers, or from parents and others within the home setting. The pre-school as a positive experience in the above sense is one of the strongest tenets of the pre-school movement, but, of course, it will be achieved to a differing extent in each pre-school.

It has been implicit in the argument so far that it is the child's perception of success at pre-school and in the early years of primary school, rather than success per se which is crucial. While some writers disagree with this proposition (e.g. Becker, Englemann & Thomas, 1971), where the two can be separated, it is the writer's belief that perception rather than reality is the crucial factor. However, it certainly becomes more difficult to provide convincing positive feedback as to their ability as learners, in the absence of real achievement when children enter primary school and undertake more formal learning tasks, particularly reading.

On the other hand evidence (Rogers, Smith & Coleman, 1978) that an individual's self-concept in relation to her classmates is a better predictor of academic performance than is standing relative to wider sets of norms, suggests that judicious grouping may be of some benefit to those whose self-concept is endangered through slow academic progress.

However, in-so-far as they are separable, it may be that the child's interests are better served in the long run by acting to enhance the positiveness of her self-concepts as a learner, rather than concentrating on enhancing the levels of achievement. In fact, there is some evidence that the two are in no way mutually exclusive, but it is likely that teachers would behave differently in many circumstances if they firmly believed that a positive self-concept was more predictive of achievement a number of years later, than was the current level of achievement. They would be more inclined to praise now, than to stress the need to catch up, and themselves to hold positive expectations for their pupils than is currently the case.

While in recent years there has been some evidence that variables closely resembling self-concept as a learner are as highly predictive of academic success as intelligence (e.g. Clifford & Cleary, 1972; Phares, 1976) most educational programs still stress the need for early

achievement in order that high levels will eventually be reached. This approach is based on the sort of evidence summarised by Bloom (1964), and certainly accords with common sense as perceived by the majority of the population. However, there is a body of evidence emerging that "earlier is better", at least as applied to a population rather than individuals (Clarke & Clarke, 1974; Kagan, 1979) may not be true. Thus, while an individual who has learned at a slower rate than her peers can usually be shown to perform less well than her peers at a later date, the evidence from intact groups is less clear. This suggests that other factors than the absolute level of achievement are operating (Kagan, 1979), and something akin to a self-fulfilling prophecy may be the mediating variable.

Perhaps, the most likely explanation for the development of self-fulfilling prophecies is the teachers' acceptance of the amount a child has learnt (and often also the type of the learning) as an indication of the child's ability to learn rather than of the prior opportunities to learn, with SES and ethnicity associated characteristics being other possible explanations.

The development of an adequate test of the child's self-concept as a learner suitable for use with pre-school children is a necessary prior step for the evaluation of many of the proposition postulated above.

2.2 The Measurement of Self-Concept.

A wide variety of approaches towards the measurement of self-concept have been adopted. The majority of these have relied upon methods which imply considerable verbal sophistication on the part of the individual being assessed.

Perhaps the most popular approach has been to have the respondent complete a personality assessment device (questionnaire, Q-sort, semantic differential) using two or more orientations, such as "As I am now" and "As I would like to be", and to use the correlation between the presently perceived self and the ideal self as a measure of self-concept.

Although the more direct approach of questioning the individual about his attitudes towards himself has not been widely used, indirect projective measures have been used frequently with both adult and child subjects. Those involving verbal responses to ambiguous stimuli are unsuitable for many children of pre-school age, while those which require the child to produce a drawing or some other object appear to be lacking in reliability and validity.

For pre-school age children, perhaps the most appropriate of the methods which require the individual to reveal his attitudes towards himself in a controlled situation, are those which present the child with a number of alternative individuals representing certain stereotypes, and ask the child to identify the individual which is most like himself. While some of these measures appear promising (e.g. Muller and Leonetti, 1974) their reliability and validity still needs to be assessed.

An alternative approach to the assessment of self-concept is to consider whether the individual acts as if he has a positive self-concept. This "ratings-by-others" approach has several dangers but also some advantages (see for example Wells & Maxwell, 1976, pp. 136-142), over the self-report methods. In particular, it removes the obvious danger of the subject providing socially acceptable answers, and in the case of adults rating young children it allows a more verbally sophisticated respondent to supply the data. On the other hand it raises the question as to whether the resultant score is more properly called self-concept or some other term more descriptive of what the measurement process involves. It is therefore extremely important to consider the processes involved in using a ratings-by-others scale designed to measure self-concept, and to consider the justification for particular items.

In the case of the Behavioural Descriptor (BD) scale, the aim was to measure the child's "self-concept as a learner". The sub-categorization of self-concept was chosen, not because it was considered that self-conceptions related to learning are unrelated to self-concept in general, nor in an attempt to form a sub-scale of a more general self-concept scale, but merely to focus on the type of question which would be most sensitive to differences in self-conceptions relating to learning.

Some support for this approach is provided by evidence that those measures of self-esteem which focus more closely on scholastic achievement correlate more highly with actual achievement (e.g. Bridgeman & Shipman, 1978) although subscales purporting to measure different facets of self-concept do not differ significantly from each other (Marx & Winne, 1978).

Although pre-schools in the Australian Capital Territory and elsewhere in Australia differ considerably along many dimensions, they all allow children considerable freedom in the types of activities

they undertake, and how, and with whom they interact. Thus the choices that children make in these matters can be said to represent freely chosen alternatives. Since two adult staff have only twenty children present during any one session (though up to sixty different children attend each week) they can come to know the children quite well.

It then becomes possible to consider what dimensions of behaviour readily visible to teachers frequently exhibited in the pre-school setting would be indicative of a child's self-concept-as-a-learner, and what specific behaviours would represent particular points along these dimensions indicative of more-or-less positive self-conceptions.

A key guiding principle was that children who were willing to tackle a wide variety of activities had positive self concepts. If they became spontaneously involved, if they persisted in the face of difficulties, if they used adults to enhance their learning but did not show undue dependence upon them, they were considered to be showing positive attitudes.

Items 1 (RESPONDADULT), 2 (FREECHOICE), 3 (ADULTDEPEND), 8 (SEPARATE), 10 (CURIOSITY), 11 (VARYMOTOR), 12 (PROBSOLVE), 14 (CLIMBING), 15 (CONSTRUCT), 17 (MUSICMOVE), 19 (SMALLMUSC), fall into this category.

A second guiding principle involved respect for peers. It was considered that those children who showed self-respect would also show respect for other children, for other children's products, and would in turn be respected by other children. On the other hand, the child should not be too submissive.

Items 4 (LEADFOLLOW), 5 (SHARES), 6 (RESPECTCHILD), 7 (OWN RIGHTS), 9 (PHYSICALAGRO), 16 (HAPPYALONE), and 20 (GROUPJOIN).

Item 13 (SHAREKNOW) also involves a non-defensive relationship with peers, since it requires a sharing of knowledge. It also requires access to knowledge and as such might be expected to tap cognitive skills as well.

Item 18 (MATLANGFLU), although primarily designed to test the fluency and flexibility of the children's productions, also appears to have a cognitive component. These two items will need to be considered carefully when the contribution of individual items to the scale are being considered.

Item 21 (SEXROLE) was included since it appears likely that those who have positive concepts about themselves will be less threatened by situations which involve behaviours more typically ascribed to sexual stereotypes of the opposite sex. They will therefore tend to exhibit behaviours more typical of the opposite sex. This item will need to be assessed carefully, since many parents who might be considered to promote self-esteem in their children, could also hold strong sexual stereotypes and consciously or unconsciously convey these stereotypes to their children. Other significant adults, including pre-school teachers, and their peers might also promote stereotypes in children which would make them disinclined to adopt cross-sex role behaviour.

While the careful definition of a construct and detailed articulation of that definition into items is an essential component of modern approaches to test construction, it is by no means a guarantee that a test so constructed will measure the construct as defined. Some consideration of any scale which emerges from this process in order to consider other constructs it may be measuring prior to any empirical evaluation appears desirable.

The Behavioural Descriptor scale (see Appendix A) appears open to interpretation as a measure of socialization. It is not surprising that items designed to measure self-concept-as-a-learner should bear a close resemblance to commonly accepted measures of socialization (particularly as conceived by educators) since interactions between parents and educators will tend towards a convergence of views on desirable behaviours upon entry to educational institutions, and parents will tend to shape children in these directions. If then, there is a convergence between those parents who are the most aware of these desired behaviours, those who are most able to promote them in their children, and those who are best able to convey a feeling of competence in these areas, a close correspondence between a positive self-concept-as-a-learner and socialization in learning related behaviours is likely. Granting this convergence, it is difficult to envisage how measures of the two constructs both based on observation by others could differ greatly. It seems that some confounding of the two variables is a necessary consequence of the method of measurement.

However, the consequences of the possible confounding should not be underestimated, for if the scale represents teachers' view concerning

the degree to which children are socialized (and individual children are socializable) then the scale may measure the teachers' expectations for their pupils, and become the basis for self-fulfilling prophecies.

3.1 The Instruments

3.11 Behavioural Descriptor Scale (BD)

The project of developing a measure of 'self-concept as a learner' for pre-school age children was commenced in 1974 when the principal researcher and a group of approximately twenty pre-school teachers prepared a scale consisting of 25 items. The items were chosen on the basis of their ability to predict the self concepts of children in the pre-school environment. Raters were required to give a rating on a five point scale, with the levels being described in terms of the child's rank in comparison to other children of the same age, each point on the scale encompassing 20% of the population. While the evaluation of this scale (Clough 1975) was satisfactory, it was decided to develop a scale based on the original, but having five behavioural descriptors as the item alternatives rather than a number from 1 to 5. It was believed that such a scale could be used more effectively by relatively inexperienced raters.

The scale was constructed largely by the writer and Dr. C. Collins (Canberra C.A.E.),^{*} P. Dinniss (Massey University), Dr. W. Donovan and Mrs. Y. Byron (A.C.T. Schools' Authority) with considerable assistance from the pre-school officer and the field consultants serving that age group, and a number of pre-school teachers*, with all items being discussed in detail prior to their inclusion. It was decided to include 21 items in the scale.

The rationale for the items to be included was that they ought to be related to behaviours likely to be exhibited in a pre-school setting, that these behaviours ought to be indicative of the child's self-concept as a learner, that the given alternatives for any item ought to form a hierarchy of response tendencies ranging from the most positive to the most negative indications of a child's self-concept as a learner, and that any item should provide one and only one alternative for each child.

* Especially Mrs. Janet McCotter and Mrs. Christine Keats.

A definition of 'self-concept as a learner', based on Coopersmith & Feldman's (1974) definition of self-concept, was accepted. This was, 'a child's self-concept as a learner consists of the beliefs, hypotheses and assumptions that the individual has about his ability to learn.' Considerable pains were taken to ensure that items sampling a wide range of learning and interpersonal situations experienced in the pre-school should be included, although it was not considered desirable to organise these into sections.

In order to facilitate scoring, and as an additional aid to establishing the hierarchical nature of the alternatives, these were arranged in order from the behaviour most indicative of a positive self-concept as a learner to that behaviour most indicative of a negative self concept as a learner. The most positive alternative was assigned a score of one, the second most positive a two, down to five for the most negative alternative. Thus a lower score would indicate a more positive self-concept.

A conscious effort was made to avoid using highly subjective terms such as rarely, frequently, most, many, etc. but this was not always possible. Similarly, while it was perceived as desirable to aim for a 20% response rate for each of the five alternatives, where a choice between avoiding ambiguity and highly subjective labels, and including an alternative likely to be infrequently chosen was involved, the latter was preferred, providing the presumed frequency was not too low.

A copy of the test is included as Appendix A.

3.12 Behavioural Checklist (BC)

In recognition of the difficulty of establishing the validity of the Behavioural Descriptor, it was decided to construct a checklist designed to cover all the behaviours likely to be exhibited by children in the pre-school, with particular emphasis on the children's behaviour during their free-choice activities. The checklist was constructed with the knowledge that the curriculum of the pre-school in the Australian Capital Territory, and generally throughout Australia is based on 'an indoor-outdoor program' where children are encouraged to choose from a range of activities prepared by their teachers, some of which will take place indoors (more likely to involve small muscle activities such as cutting,

pasting and threading; construction toys; painting, drawing and other art activities, and music and movement) and some outdoors (climbing, balancing, swinging; riding wheeled toys; larger construction toys; playing in a sand pit; water play). While most of the above activities may occur indoors or outdoors, in practice outdoor activities tend to involve more boisterous behaviour, a greater expenditure of energy and the use of large muscle skills to a greater extent.

A checklist of 50 behaviours designed to be mutually exclusive and exhaustive with respect to behaviour exhibited in the pre-school was constructed by the principal investigator and the two research assistants*, and this was trialled on children not otherwise involved in the project. Initially behaviours were included only if they were considered to discriminate between children who had a high and a low self-concept as a learner, but it was decided to expand the list so that all the more common events exhibited in the pre-school could be categorised. Each child was observed for two twenty minute periods, one indoors and one outdoors, and for each period; any occurrence of a behaviour was scored as one. Thus a score between zero and two could be attained on any item. A copy of the test is included as Appendix B.

3.13 Projective Scale

An earlier attempt had been made by the writer in conjunction with G. Robson to construct a projective test of self-concept as a learner. It involved the use of two identical dolls, with one of a pair of statements considered to represent extremes of behaviours indicative of self-concept as a learner attributed to each doll. The child was then asked which of the dolls was more like him or her. The scale was trialled on a group of children to whom the earlier version of the Behavioural Descriptor Scale had been administered. The results were disappointing. However, since this form of test has been successful in measuring social-emotional behaviours among children of the age group being studied (e.g. the IT test), and a group of fourth year Bachelor of Education students studying within the Early Childhood specialization at the Canberra CAE * were interested in the project, it was decided to develop a new form of the scale, and to administer it to some of the children involved in the project.

* Mrs. M. Goodchild and Mrs. P. Goss

* Mrs. D. Dixon, Miss J. Finn & Miss P. Retallak

A decision was made to use the 21 items of the BD scale as a basis for constructing items. It was considered that pairs of statements representing less extreme categorisations than those included in the earlier scale would be advisable. A total of 22 items were constructed, with one item having a male and a female version. The additional item resulted from the view that one of the BD items could better be measured in a projective form if two aspects of that item were treated separately.

Several drafts of the scale were trialled on children not otherwise involved in the project, before the final version of the scale was decided upon. Revisions were made in the content and order of items as the result of these trials.

During its administration care was taken to alternate the more positive statements between the right and left hand dolls, and to vary the position of the dolls even though they were considered to be identical. If the children's attention wandered during the testing and could not be regained, or if the children showed fatigue, testing was discontinued, and recommended at a more appropriate time.

A copy of the test is included at Appendix C.

3.2 Procedure

The project was a co-operative endeavour between a group of researchers at the Canberra CAE, researchers, administrators and teachers from the Australian Capital Territory Schools' Authority, and students from the Canberra CAE.

Permission to use pre-schools administered by the A.C.T. Schools' Authority was given by the Pre-School Officer and the Principal Research Officer of the Authority, and arrangements were made for the writer to address regional meetings of pre-school teachers concerning the project. At these meetings, the project was explained, and teachers were invited to volunteer to participate in the project. In some cases, where teachers were not able to attend the regional meeting, the relevant regional consultant suggested that these people would be interested in participating. Such persons were contacted by telephone, and if they did express an interest arrangements were made to visit them in their pre-schools.

All the volunteers were visited in their pre-schools by the writer and the research assistant who would be working in that pre-school, and their involvement in the project was explained in greater detail. If they still wished to volunteer, they were asked if they were prepared to have their assistant also complete the Behavioural Descriptor once, and if they were, the assistant was invited to volunteer.*

Approximately six pupils from each teacher's oldest group were then selected. All children in whose home English was not the main language of conversation, who were obviously intellectually or physically handicapped or emotionally disturbed were excluded from the sample, as were any whom the teacher had not known for a period of one month. The remainder were randomly selected according to an alphabetical roll of all eligible children. No attempt was made to control for sex, intelligence (except as noted above), social class or other such variables.

Parents of the children selected were contacted by letter, invited to seek more information by telephone from the writer, or from the research assistant or teacher personally (a parent normally takes a child to, and collects the child from each pre-school session the child attends), and to indicate if they did not wish their child to be included in the project. A number of parents sought additional information, but none declined to have their children involved.

All the teachers were trained pre-school teachers, but varied in experience from just over one year experience to approximately thirty years. On the other hand, only a minority of assistants had undertaken formal training for their occupation.

Both the teacher and the assistant were requested to complete the Behavioural Descriptor Scale as soon as it was convenient. They were especially asked to complete the scale independently, and not to discuss children's scores on items or the scale as a whole. In practice, most of the pro-formas had been completed within two weeks.

* In some cases where two pre-schools were being shared between two teachers, or in certain other arrangements involving joint staffing, two teachers assessed the child rather than one teacher and one assistant.

The research assistants began the process of completing the Behavioural Checklist and the Behavioural Descriptor for each child. They completed the BC for each child in any given unit, and when this process was complete, rated the children on the BD. In this way they maximised the opportunity for incidental observation of the children, as compared with the completion of the BC and the BD strictly child by child.

Approximately four months after the first administration of the Behavioural Descriptor by the teachers, they were given another copy of the scale, and asked to complete it on the same children.

At about the same time a number of teachers were approached to see if they were willing to have those of their pupils who were involved in the project tested on a general ability test provided that parental permission was sought. After teacher agreement, the parents were approached seeking permission, and also seeking information about indices of socio-economic status and family status. Care was taken to ensure that geographical areas differing widely in socio-economic status were represented in this sub-sample.

The Peabody Picture Vocabulary Test was administered to this group of children. It was chosen because experience indicates that very few children fail to co-operate during its administration. Since only a pointing response is required it is less likely that children scoring low on for example items 1 (RESPONDADULT), 8 (SEPARATE), 10 (CURIOSITY) and 12 (PROBSOLVE) from the BD would have their score on the test influenced by these tendencies.

The main index of socio-economic status (SES) was calculated from father's occupation using Congalton's (1968) scale. If the child's father was not present in the home, the mother's last occupation (other than housewife) was used.

After all other aspects of the study were completed the three students who assisted in the construction of the Projective Scale administered this to a number of children involved in the project. This sub-sample was chosen largely on the basis of the students working with teachers with whom they had already established personal contacts, and whose pupils were already involved in the sub-sample to which the PPVT had been administered.

All the results were transferred to coding sheets and entered into the Canberra College of Advanced Education Burroughs B6700 computer by means of punched cards or directly through visual display terminals.

When all the data was entered a printout was obtained and this was checked against the original coding sheets to ensure accuracy. Any necessary corrections were made and again checked for accuracy.

The results were then analysed using the BASIS statistical package.

4.1 BEHAVIOURAL DESCRIPTOR

4.11 Test-Retest Reliability

The twenty one item behavioural descriptor (BD) schedule was completed by 43 pre-school teachers for 223 of their pupils, (BD1 is used to describe this administration), comprising 117 boys (52%) and 106 girls (48%).

Approximately 120 days later, the teachers again completed the BD on as many of the original subjects as possible, and these results (BD4) were analysed using the Pearson product-moment correlation.⁽¹⁾

At the first completion the average age of the children was 55.88 months (4 years 7.88 months). At the time of the second completion there were 214 subjects, comprising 105 males (49%) and 109 females (51%).

The result is shown in Table 4.1.

This figure of 0.82 is a highly satisfactory result for the first evaluation of a measure of social-emotional development in a group of such young children. The relative instability of social-emotional behaviour among young children has been well documented in the literature and several teachers commented that a particular child had changed in his/her attitude towards pre-school during the time between the two ratings, in some cases quoting changes in circumstances which could have led to such changes.

Since teachers were aware that they were to complete the BD a second time, it is possible that they took steps to ensure that the ratings would not differ too greatly on the two occasions, but the fact that the original proformas were collected at least 2 months before the second set were distributed the anonymity the teachers enjoyed in the attribution of results, and their status as volunteers in the project would militate against this occurring.

4.12 Inter-Rater Reliability

Concurrently with the teacher's first rating of the children, her assistant (or in some cases a co-teacher) independently completed the behavioural descriptor schedule on the same children (BD2). The result is shown in Table 1.

(1) CORREL in the Burroughs BASIS statistical package.

As many as possible of the children were also rated on the BD by one of two research assistants. This rating was carried out after the child had been the prime subject of observation for 40 minutes in order that the behavioural checklist (BCL) could be completed for that child. Other opportunities for observation of the child existed, since approximately 5 other children were observed in each pre-school unit.

The results of this analysis (BD3) were then correlated with the other three administrations of that schedule, and the results are summarised in Table 1.

Table 4.1 Inter correlations of administrations of behavioural descriptor test (sample size in brackets)

	BD1	BD2	BD3	BD4
BD1	*			
BD2	.72 (212)	*		
BD3	.46 (211)	.50 (200)	*	
BD4	.82 (214)	.67 (203)	.46 (206)	*

These results show some interesting trends.

1. The administration by the research assistants (BD3) correlates least well with the other administrations.
2. The assistants' ratings (BD2) correlate a little better with the teachers' concurrent ratings (BD1) than with the teachers' subsequent ratings (BD4).
3. The research assistants' ratings correlate equally well with the teachers' first and second administrations.

The generally low correlation between the research assistants' ratings and the other ratings is probably due to the small amount of the children's behaviour they were able to sample. They specifically commented that some items were difficult, if not impossible to complete for this reason. This issue can be more fully considered after an item analysis. It would have been helpful to study the effect of increased observation time on interrater reliability, but sufficient resources were not available for this purpose.

The correlation of 0.72 between the concurrent ratings by the teacher and the assistant is disappointing (although it does account for approximately 52% of the variance) but this might be considered to be a minimum figure since no training in the use of BD or

instruction manual was provided, and since the experience of completing such schedules was minimal in many cases.

On the other hand, opportunities for collusion over results was high, and the correlations, particularly between the teacher and the assistant for the concurrent ratings (BD1 with BD2) may have been inflated by such collusion. However, since the correlation between the assistants' ratings (BD2) and the teachers' later ratings (BD4) are of the same order as the concurrent rating (0.67 vs 0.72) there is some evidence that collusion has not occurred to any marked degree.

If the assumption is made that correlations between administrations of the schedule will tend to fall in relation to increase in the period of time between the administrations, since on the average the research assistants ratings were completed continuously between the two ratings by the teachers the identical correlations between BD3 and BD2, and BD3 and BD4 are as expected.

While the inter-rater reliability of the behavioural descriptor schedule is somewhat disappointing, the results of item analyses may indicate ways in which later forms of the schedule may be improved.

4.13 Item Analysis

The behavioural descriptor schedule consists of twenty one items. Scores for each of these items was correlated with the total for that administration of the scale, and with the teachers' first administration of the scale (BD1).

The correlation of items with total score for BD1 range from 0.68 to 0.27 with a mean of 0.54, with 11 items above 0.60, 13 items above 0.50 and 17 items above 0.40. That is only 4 items, numbers 1, 9, 16 and 21 correlate with total score less than 0.40.

When the item-total score correlation from each of the four administrations is averaged the result is essentially similar, with the range being from 0.71, to 0.30 with a mean of 0.53. Twelve items fall above 0.50 and 16 at or above 0.40.

In each case the items which show the lowest level of correlation with the total are numbers 16, 21, 1 and 9.

The highest levels of correlation with the total are those of items 12, 13, 10 and 7.

Table 4.2 Correlations between item and total scores for the four administrations of the behavioural descriptor schedule

Item Number	Item score with Total score	BD1	Rank	BD2	BD3	BD4	BD2	BD3	BD4	Mean of 1-4	Rank
1		0.39	= 18.5	0.42	0.28	0.40	0.33	0.18	0.34	0.37	18
2		0.49	14	0.50	0.53	0.40	0.30	0.16	0.30	0.48	14
3		0.42	17	0.32	0.42	0.37	0.22	0.15	0.21	0.38	17
4		0.55	13	0.53	0.71	0.58	0.38	0.30	0.48	0.59	= 10
5		0.62	= 7.5	0.62	0.62	0.55	0.42	0.27	0.51	0.60	8
6		0.65	= 4.5	0.59	0.52	0.58	0.43	0.28	0.46	0.59	= 10
7		0.65	= 4.5	0.67	0.66	0.66	0.44	0.30	0.55	0.66	= 3.5
8		0.47	15	0.43	0.27	0.41	0.36	0.26	0.28	0.40	= 15.5
9		0.39	= 18.5	0.37	0.26	0.41	0.36	0.17	0.32	0.36	19
10		0.67	= 2.5	0.67	0.54	0.71	0.49	0.17	0.57	0.65	= 5.5
11		0.62	= 7.5	0.67	0.73	0.60	0.50	0.30	0.59	0.66	= 3.5
12		0.68	1	0.64	0.74	0.71	0.41	0.38	0.51	0.69	2
13		0.67	= 2.5	0.68	0.76	0.72	0.49	0.35	0.63	0.71	1
14		0.43	16	0.42	0.40	0.35	0.30	0.18	0.33	0.40	= 15.5
15		0.61	9.5	0.59	0.61	0.53	0.39	0.24	0.40	0.58	12
16		0.27	21	0.30	0.33	0.28	0.21	0.21	0.17	0.30	21
17		0.60	11	0.58	0.32	0.45	0.47	0.17	0.38	0.49	13
18		0.61	9.5	0.63	0.79	0.58	0.46	0.34	0.49	0.65	= 5.5
19		0.64	6	0.68	0.57	0.60	0.51	0.38	0.51	0.62	7
20		0.59	12	0.54	0.66	0.58	0.44	0.25	0.47	0.59	= 10
21		0.38	20	0.23	0.39	0.38	0.18	0.14	0.35	0.35	20
Mean		0.54		0.53	0.53	0.52	0.39	0.25	0.42	0.53	

It should be noted that in every case the item score contributes to the total score with which it is correlated, and that this will tend to inflate the correlation co-efficient slightly. However, since there are 21 items involved, this effect will not be dramatic.

There are a variety of reasons why an item in a test may show a poor correlation with the total score. These include that the item is measuring an attribute that is not closely related to that being measured by other items in the test, and that it is a poor measure of an attribute which is related to the other items on the test. The reasons that it is a poor measure are also several, and include the extent to which the item discriminates between the members of the population, the mean and the standard deviation of the item being useful indices of this.

Table 4.3 Means and standard deviations of items for the four administrations of the BD, and the range and means of these means and standard deviations.

Item No.	Administration											
	BD1		BD2		BD3		BD4		Range		Means	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1	2.08	0.77	2.21	0.74	2.25	0.77	2.04	0.76	0.17	0.03	2.15	0.76
2	2.11	0.94	2.10	0.91	1.84	0.90	2.10	0.93	0.27	0.04	2.04	0.92
3	2.14	1.05	1.95	1.02	1.89	0.90	2.02	1.04	0.25	0.15	2.00	0.98
4	2.21	1.16	2.24	1.20	2.18	1.19	2.08	1.10	0.16	0.10	2.18	1.16
5	2.43	1.11	2.54	1.08	2.69	1.00	2.36	1.11	0.33	0.11	2.51	1.08
6	2.32	1.06	2.42	1.01	2.58	0.75	2.16	0.89	0.42	0.31	2.37	0.93
7	2.57	1.42	2.46	1.39	2.87	1.27	2.42	1.29	0.45	0.15	2.58	1.34
8	1.65	1.01	1.73	0.96	1.05	0.25	1.59	0.90	0.68	0.76	1.51	0.78
9	1.79	1.01	1.80	1.07	1.67	0.83	1.72	0.89	0.13	0.24	1.75	0.95
10	1.76	1.03	2.01	1.13	1.51	0.85	1.73	0.99	0.50	0.28	1.75	1.00
11	1.67	0.91	1.77	0.98	1.65	0.90	1.58	0.92	0.19	0.08	1.67	0.93
12	2.23	1.22	2.27	1.17	2.10	1.09	2.12	1.08	0.17	0.14	2.18	1.14
13	1.91	1.09	2.05	1.08	2.18	1.04	1.73	0.97	0.45	0.12	1.97	1.05
14	1.58	0.75	1.61	0.78	1.36	0.70	1.50	0.64	0.25	0.14	1.51	0.72
15	1.91	0.95	2.00	0.92	2.11	0.92	1.90	0.96	0.21	0.04	1.98	0.94
16	2.35	1.14	2.47	1.10	2.45	1.12	2.34	1.12	0.13	0.04	2.40	1.12
17	2.28	0.97	2.43	0.91	2.12	0.54	2.25	0.98	0.31	0.44	2.27	0.85
18	2.75	1.07	2.94	1.10	2.63	1.04	2.64	1.04	0.31	0.06	2.74	1.06
19	1.80	1.10	1.90	1.19	1.97	1.08	1.67	1.03	0.30	0.11	1.83	1.10
20	1.73	1.05	1.55	0.93	1.87	1.08	1.72	0.99	0.32	0.15	1.72	1.01
21	2.83	1.10	2.92	1.00	3.53	1.08	2.87	1.03	0.70	0.10	3.04	1.05
TOTAL	44.13	11.98	43.31	11.58	44.56	10.74	42.53	10.74				

In order that an item should provide maximum discrimination between the members of a population it should have a mean equivalent to the midpoint of the possible range of scores (in this case 3) and as large a standard deviation as possible. Where a variable changes as the result of age, it is desirable that at the midpoint of the age range for which it is intended, that the mean score on the test should fall close to the midpoint of the possible range of scores. In addition, the results should not change too rapidly with age or the test will show poor discrimination at the extremes of the age range.

Perusal of Table 4.3 indicates that the mean total score falls well below the desirable mean total score of 63 (21 items X 3) for all administrations (range 42.53 to 45.31). It is encouraging however that the change over the approximately four month period between the BD1 and BD4 administrations was only 1.60, indicating that if scores continue to change at a fairly constant rate with age, that the scale will be a suitable measure over a considerable age range.

On the other hand items do seem to provide negative alternatives which are too strong for the present population, and some re-writing of items may aid in making the scale more sensitive.

The standard deviation for the total score is relatively consistent across the four administrations (range 10.74 to 11.98) and in general is satisfactory. Given that the possible range of scores is from 21 to 105, the scores encompassed by three standard deviations above and below the mean for BD1 of 8.19 to 80.07 represent a reasonable approximation in range (71.88 vs 84), although distributed around a much lower mean. Similar data for BD4 is less satisfactory on both counts with the six standard deviation range being from scores of 10.31 to 74.75, giving a range of 64.44, indicating that the standard deviation falls below the ideal, and that the mean is also too low. There is considerable restriction of the range of alternatives at the low (higher self-concept as a learner) end of the scale. This would imply that the reliability of the scale may tend to decline markedly if it is used with children much over the age of five.

Comparison of the means and standard deviations for individual items for the different administrations indicates that in all except 3 cases the BD3 administration (the research assistants) have one of the two extreme scores for means (9 times the highest, 9 times the lowest) and for standard deviations to have the lowest ten times, equal lowest twice, highest once and equal highest once. This falling at the extremes

including the lower standard deviations is probably due in part to the BD1, 2 and 4 administrations being the average of the results of over 40 raters, compared with only two raters for BD3, but the lower standard deviation is probably also due in part to a disinclination to give extreme ratings on certain items because of so little familiarity with the child. The most discrepant standard deviations for the BD3 administration were for items 8 (0.25 vs 0.90 to 1.05) and item 17 (0.54 vs 0.91 to 0.98). Item 8, concerning separation from adults would in many cases refer to behaviour occurring soon after the child's admission to the pre-school, while item 17, concerning participation in music and movement activities implies considerable knowledge of the child's activities in that area. In particular both "actively seeks out such activities" and "refuses to join such activities", the two extreme ratings may require a lengthy period of observation of the child before they are noted, especially since music and movement activities are liable to be less frequently available than, for example, small muscle activities, construction equipment and climbing apparatus.

In terms of individual items, for the BD1 administration no items fall at or above the midpoint of the range of possible scores (3), only three fall within 0.5 points below that point (2.50-2.99), and a further eight fall within the next 0.5 points (2.00-2.49). The lowest mean score for an item on this administration is 1.58, only 0.58 above the lowest possible score.

For all except one item the mean score falls from the teachers' first administration (BD1) to their second administration (BD4), indicating an improvement in self concept as a learner over that period of time. The extent of the fall was from 0.01 to 0.16, with the one rise being 0.04.

Of course, the maximum discrimination by a test can be achieved by having some items which fall above the desirable figure for maximum discrimination if this is compensated for by others which fall below that figure (power tests), but this situation is less justifiable where items are included to sample specific aspects of behaviour. In any case, it is obvious, that at the ages tested in the BD1 and BD4 administrations there were no compensating high scores for the many lows.

It can therefore be concluded that the scale as a whole is beginning to lose the ability to discriminate between individuals who exhibit a high self concept as a learner in the age range of 4 years 8 months to about 5 years, and that for some items this inability is becoming critical.

Some further information about the items are revealed by a factor analysis of the twenty-one items. The FACTOR program of the Burroughs BASIS statistical package was used, with factors being extracted until

an eigen value of one is reached. Rotation resulted in four orthogonal factors.

The results are as shown in Table 4.4

Table 4.4

Factor Loadings

Item Number	I	II	III	IV
1	0.59	-0.21	-0.32	-0.15
2	0.09	-0.04	0.81	-0.10
3	-0.02	-0.20	0.76	0.02
4	0.61	0.27	0.34	-0.21
5	0.43	-0.62	0.04	-0.18
6	0.54	-0.45	-0.01	-0.30
7	0.53	-0.21	0.38	-0.09
8	0.27	-0.04	0.50	-0.08
9	0.24	-0.78	-0.01	0.13
10	0.66	-0.11	0.14	-0.30
11	0.15	-0.23	0.37	-0.60
12	0.43	-0.35	0.43	-0.18
13	0.73	-0.02	0.19	-0.27
14	0.21	0.24	0.46	-0.41
15	0.37	0.10	0.30	-0.57
16	-0.24	-0.66	0.17	-0.15
17	0.31	-0.37	0.07	-0.51
18	0.44	0.09	0.41	-0.35
19	0.20	-0.47	0.19	-0.56
20	0.62	-0.23	0.19	-0.06
21	0.13	-0.02	-0.14	-0.67
Σ total variance	17.9	12.0	13.3	11.7

Heaviest loadings on the first factor are for items 13(SHAREKNOW, 0.73), 10 (CURIOSITY, 0.66), 20 (GROUPJOIN, 0.62) and 4 (LEADFOLLOW, 0.61). Six other items have loadings of more than 0.40, and these are 1 (RESPOND ADULT, 0.59), 6 (RESPECTCHD, 0.54), 7 (OWN RIGHTS, 0.53), 18 (MATLANGFLU, 0.44), 5 (SHARE, 0.43) and 12 (PROBSOLVE, 0.43). In a sense, item 13 epitomises this factor, for it implies access to knowledge and a willingness to share it, which is close to what this factor appears to be measuring. However, the considerable number of items related to interpersonal skills imply a slight widening beyond the content of item 13, and thus the factor is seen to involve social facility, willingness to try and knowledge.

Factor II loads most heavily on items 9 (PHYSICAL AGRO, -0.78), 16 (HAPPY ALONE, -0.66), 5 (SHARES, -0.62), 19 (SMALL MUSC, -0.47) and 6 (RESPECTCHD, -0.45). This factor appears to represent a continuum from social passivity to aggressive domination.

Factor III is dominated by items 2 (FREECHOICE, 0.81) and 3 (ADULT DEPEND, 0.76) with items 8 (SEPARATE, 0.50), 14 (CLIMBING, 0.46), 12 (PROBSOLVE, 0.43) and 18 (MATLANGFLU, 0.42) also being strongly associated. This factor appears to be composed mainly of independence, with which is associated intellectual skills.

The highest loadings on factor IV are items 21 (SEXROLE, -0.67), 11 (VARYMOTOR, -0.60), 15 (CONSTRUCT, -0.57), 19 (SMALLMUSC, -0.56), 17 (MUSIC MOVE, -0.51) and 14 (CLIMBING, -0.41). This appears to be a sex-stereotype factor, with the other associated items representing skills which are sex-stereotyped for either or both sexes. Interpretation is difficult since sexually stereotyped males might be expected to exhibit different behaviours from sexually stereotypical females. Some clarification is available from separate factor analyses for both sexes, and the relevant parts of these are reported in Table 5.

Table 5.

Item	<u>Loadings</u>		
	Boys (Factor V)	Girls (Factor IV)	All (Factor IV)
21	-0.57	-0.81	-0.67
11	-0.08	-0.26	-0.60
15	0.06	-0.64	-0.57
19	-0.01	-0.31	-0.56
17	0.23	-0.13	-0.51
14	0.68	-0.42	-0.41
(18)	0.39	-0.61	-0.35
(12)	0.40	-0.21	-0.18

It seems obvious that the low score on item 15 (CONSTRUCT) is associated with strong sex-stereotyping through the girls patterns of behaviour as it is for item 19 (SMALLMUSC), that there is some cancelling out of opposite tendencies in item 18 (MATLANGFLU) and possibly item 12 (PROBSOLVE), and very little evidence of a combined effect across sexes, with the possible exceptions of item 11 (VARYMOTOR). It should be noted however that item 21 (SEXROLE) for boys loads more evenly for boys across six factors (0.25, -0.25, -0.02, 0.30, -0.57 and -0.15) than it does for girls on five factors (0.18, -0.02, -0.13, -0.81 and 0.07) and for the sexes combined (four factors) (0.13, -0.02, -0.14 and -0.67) and thus factor V for the boys is probably somewhat different from factor IV for the total group, and factor IV for the girls.

Factor I accounts for the highest proportion of the total variance, with Factor III the next highest, with Factor II the next highest. The order is a satisfactory one, since the content of those factors approximates most closely to that specified in designing the scale. However, the fact that the four factors account for only 54.9% of the total variance is somewhat disappointing.

One further analysis of items needs to be considered, and that concerns differential performance by the sexes. As perusal of table 6 indicates on total score for the BD1, BD2 and BD3 administrations girls were superior to boys, the differences ranging from 3.59 to 5.01 ($p < .01$ in each case). This was despite the fact that boys had a slightly higher mean I.Q.* (105.76 vs 101.88, difference 3.88, $= p < .05$) and a more favourable socio-economic status* (SES) (3.45 vs 4.28, difference 0.83, $p < .001$), but were a little younger (55.79 vs 56.01, difference 0.22, not significant)

The girls were superior on sixteen of the twenty one items, with nine of these differences having a probability of occurring by chance less than .05. None of the differences where the boys were superior approached significance.

* These results are based on a sample of subjects rather than the total of subjects.

TABLE 6

A comparison of means and standard deviations for
boys and girls for some test scores.

VARIABLE	MEAN		STANDARD DEV.		DIF. BET. MEANS	SUP.	t	p
	Boys	Girls	Boys	Girls				
BD1 Item 1	2.23	1.92	0.75	0.76	0.31	G	1.73	.05<p<.10
2	2.11	2.12	0.89	1.01	0.01	B	-	n.s.
3	2.26	2.00	1.08	1.01	0.26	G	2.10	<.025
4	2.18	2.25	1.15	1.17	0.07	B	-	n.s.
5	2.58	2.27	1.11	1.11	0.31	G	2.29	<.05
6	2.50	2.11	1.09	0.99	0.39	G	2.29	<.05
7	2.75	2.39	1.30	1.52	0.36	G	1.96	.05<p<.10
8	1.57	1.74	0.93	1.09	0.17	B	1.29	n.s.
9	2.08	1.48	1.05	0.88	0.60	G	4.75	<.001
10	1.79	1.74	1.09	0.98	0.05	G	-	n.s.
11	1.74	1.58	0.93	0.88	0.16	G	1.36	n.s.
12	2.48	1.95	1.32	1.04	0.53	G	3.41	<.001
13	1.92	1.90	1.09	1.09	0.02	G	-	n.s.
14	1.56	1.60	0.72	0.78	0.04	B	-	n.s.
15	1.83	2.00	0.90	1.00	0.17	B	1.38	n.s.
16	2.41	2.28	1.13	1.16	0.13	G	-	n.s.
17	2.51	2.01	1.02	0.85	0.50	G	4.08	<.001
18	2.87	2.62	1.05	1.07	0.15	G	-	n.s.
19	2.07	1.50	1.15	0.97	0.57	G	4.10	<.001
20	1.92	1.52	1.10	0.95	0.40	G	2.81	<.01
21	3.05	2.59	1.09	1.07	0.46	G	3.27	<.01
Total	46.41	41.63	11.40	12.20	4.78	G	3.12	<.01
BD2 Total	47.76	42.75	12.26	10.29	5.01	G	3.39	<.001
BD3 Total	46.30	42.61	10.94	10.07	3.59	G	2.62	<.01
Projtotal	35.65	36.29	2.34	3.03	0.64	G	1.29	n.s.
Age	55.79	56.01	3.59	3.17	0.22		-	n.s.
IQ(PPVT)	105.76	101.88	14.16	11.55	3.88	B	2.30	<.05
Father SES	3.45	4.28	1.61	1.65	0.83	B	5.45	<.001

The girls' lower scores are so general that it would appear that separate norms for the two sexes would be required, rather than some weighting of items, item rewriting, or elimination of some items, although the last would be of considerable assistance. The finding, of course raises the question as to whether there are real differences between the self-concepts as learners of the sexes at this age. It now seems appropriate to consider each of the items separately, with a view to how the test as a whole may be improved.

The items will be listed in the order in which they appear in the test, and the mnemonic item name will be shown. For details of the item content, see appendix A. All statistics quoted will be for the BDI administration.

Item 1, RESPONDADULT

Item/Total Score Correlation 0.39

Mean 2.08 Standard Deviation 0.77

Difference between male and female means 0.31 (G)

Factor Loadings I 0.59 III -0.32

This item has one of the poorest correlations with total score (18/21), although it does show a reasonable loading on factor I. The poor correlation may result from a lack of discrimination since the mean score is low, and the standard deviation small. In fact alternative 5 has not been chosen once for this item, and this would imply that rewriting of that alternative, and perhaps of 4 or 3 also would improve its discrimination at the present age level. On the other hand, alternative 5 might be particularly appropriate for younger, or more disturbed children or in less benign environments. The item shows a more than average difference between the sexes (0.31 vs 0.23) and its removal from the scale would tend to reduce the need for separate norms.

Some re-writing, in an attempt to stress the use of adults as an aid to learning might be useful, but this may make its focus too close to item 12 (PROBSOLVE).

It appears that the scale would be improved by the omission of this item if the scale was to be used with a population similar to the present sample, but that with a younger, or more disturbed group, or in a less benign environment, it may still be a useful item.

Item 2, FREECHOICE

Item/Total Score Correlation 0.49
Mean 2.11 Standard Deviation 0.94
Differences between male and female means 0.01 (B)
Factor Loadings I 0.09 III 0.81

Although its correlation with total score accounts for only 24% of its variance this item can be considered to make a worthwhile contribution to the scale even though the mean and standard deviation are both somewhat low. It deals with an important behaviour, and contributes markedly to the third factor that of independence.

There is little difference between the sexes in results.

Item 3, ADULTDEPEND

Item/Total Score Correlation 0.42
Mean 2.14 Standard Deviation 1.05
Difference between male and female means 0.26 (G)
Factor Loadings I -0.02 III 0.76

The inclusion of this item must be considered to be marginal since the correlation with total score accounts for only 18% of the item variance. It appears to be tapping similar characteristics to item 2 ($r = 0.53$), and together with that item has the highest loading on factor III. Its mean and standard deviation are of the same order as the average for the 21 items (2.14 vs 2.10 and 1.05 vs 1.04 respectively). It produces somewhat lower scores for females, but is not very discrepant from the average difference in this respect. On balance, it appears worthwhile including, as it contributes satisfactorily to the measurement of the independence dimension.

Item 4, LEADFOLLOW

Item/Total Score Correlation 0.55
Mean 2.21 Standard Deviation 1.16
Difference between male and female means 0.07 (B)
Factor Loadings I 0.61 II 0.27 III 0.34 IV -0.21

This is one of a fairly large group of items which load reasonably well on the first factor, and lead to the view that it relates closely to interpersonal skills. It is not however so factorially pure as some other items. Its correlation with total score accounts for .30 of the item variance, its mean and standard deviation compare favourably with other items, and males tend to score better than females.

Its inclusion is justified.

Item 5 SHARES

Item/Total Score Correlation 0.62

Mean 2.43 Standard Deviation 1.11

Difference between male and female means 0.31 (G)

Factor Loadings I 0.43 II -0.62

This is one of three items with a high loading on factor II, aggressive domination. It is also related to factor I. It has a satisfactory part whole relationship (38% of item variance accounted for), and satisfactory levels of mean and standard deviation. Although girls obtain significantly lower scores, this is not in itself a reason for rejecting the item.

Item 6 RESPECTCHILD

Item/Total Score Correlation 0.65

Mean 2.32 Standard Deviation 1.06

Difference between male and female means 0.39 (G)

Factor Loadings I 0.54 II -0.45 IV -0.30

This item is marked by a satisfactory correlation with total score with 42% of item variance accounted for in this way. It load most on factor I, but also to considerable amounts on factors II and IV. Means and standard deviations are satisfactory, but girls are evaluated significantly higher on this item.

There is a strong case that it should be retained.

Item 7 OWN RIGHTS

Item/Total Score Correlation 0.65

Mean 2.57 Standard Deviation 1.42

Difference between male and female means 0.36 (G)

Factor Loadings I 0.53 III 0.38

This item has the largest standard deviation of any item, and the third largest mean. The part whole correlation is satisfactory (accounting for 42% of item variance). It loads on two factors to a significant degree, but like many items gives a more favourable evaluation of girls.

Item 8 SEPARATE

Item/Total Score Correlation 0.47

Mean 1.65 Standard Deviation 1.01

Differences between male and female means 0.17 (B)

Factor Loadings I 0.27 III 0.50

Although the mean for this item is somewhat low, the standard deviation

is satisfactory. The low mean is probably related to infrequent use of choice number 5; "Is often upset and slow to settle". This choice would be less likely to be appropriate since only children who had been at pre school for 4 weeks were included in the sample, and the majority of children would be over separation problems by then. As for choice 5 of item 1, this choice might be particularly appropriate for younger, or more disturbed children or in less benign environments.

Item 9 PHYSICAL AGRO

Item/Total Score Correlation 0.39

Mean 1.79 Standard Deviation 1.01

Difference between male and female means 0.60 (G)

Factor Loadings I 0.24 II -0.78

This item has the highest loading on factor two, aggressive domination. Other items which have sizeable correlations with factor II are numbers 16 (HAPPY ALONE, -0.66), 19 (SMALLMUSC, -0.47), 6 (RESPECTCHILD, -0.45), 17 (MUSICMOVE, -0.37) and 12 (PROBSOLVE, -0.35). Because of this high loading, together with low loadings on most other factors, one can take the view that the item is measuring a second important aspect of "self-concept as a learner" and that as such the comparatively low correlation with total score is not a disadvantage. Similarly the significantly more favourable rating for girls on this item ($t = 4.75$, $p < .001$) can be rationalized as co-inciding with known differences between males and females with regard to physical aggression.

It would seem appropriate to retain the item in the scale on an experimental basis.

Item 10 CURIOSITY

Item/Total Score Correlation 0.67

Mean 1.76 Standard Deviation 1.03

Difference between male and female means 0.05 (G)

Factor Loadings I 0.66 IV -0.30

This is one of a fairly large group of items which correlate substantially with the total score, show high loadings on factor I, and considerably lower loadings on other factors. This particular item is in the cluster of cognitive skill items as opposed to the social skill items which contribute to factor I. Both the mean and standard deviation are lower than desired for the current age range, but the relationship between sex and score is very low.

Item 11 VARYMOTOR

Item/Total Score Correlation 0.62

Mean 1.67 Standard Deviation 0.91

Difference between male and female means 0.16 (G)

Factor Loadings I 0.15 II -0.23 III 0.37 IV -0.60

The level of item with total score correlation is satisfactory, and although it loads to some extent on all four factors, it is clearly closest to factor IV, sex-stereotype. It appears that stereotypical girls show interest in a narrow range of motor skills, and that this principally accounts for the loading on factor IV.

There is a noticeable, but not significant, difference between the sexes on scoring on this unit, and both the means and standard deviation, but particularly the latter are rather low. Some re-writing of the item would appear advisable, since alternative five is not chosen for either sex.

Item 12 PROBSOLVE

Item/Total Score Correlation 0.68

Mean 2.23 Standard Deviation 1.22

Difference between male and female means 0.53 (G)

Factor Loadings I 0.43 II -0.35 III 0.43 IV -0.18

This item shows the highest correlation with total score, but this appears as comparatively high loadings on three factors rather than a particularly high correlation on one.

It has a satisfactory mean and standard deviation, but is an item on which girls perform significantly better ($t = 3.41, p < .001$), a not entirely expected result.

Item 13 SHAREKNOW

Item/Total Score Correlation 0.67

Mean 1.91 Standard Deviation 1.09

Difference between male and female means 0.02 (G)

Factor Loadings I 0.73 IV -0.27

This item appears to be tapping essentially the same attributes as item 10, CURIOSITY. It is therefore a key item in the test. Although both the mean and standard deviation fall below optimal levels, they are satisfactory. The difference between the sexes is particularly low.

Item 14 CLIMBING

Item/Total Score Correlation 0.43

Mean 1.58 Standard Deviation 0.75

Difference between male and female means 0.04 (B)

Factor Loadings I 0.21 II 0.24 III 0.46 IV -0.41

As with a number of other items, this one loads across several factors rather than on a particular one. As the lowest loading is on factor I, if a decision was made to move towards a factorially purer test with social facility, willingness to try, and knowledge as its main dimension, it would be prudent to omit this item. However, since this item loads most heavily on factor III, independence, arguably one of the main components of a positive self-concept as a learner, there is a case for its retention. Support for its retention would come from the relatively high correlation with total score, and the low difference between the sexes, but some re-writing is implied by the low mean and particularly low standard deviation.

Item 15 CONSTRUCT

Item/Total Score Correlation 0.61

Mean 1.91 Standard Deviation 0.95

Difference between male and female means 0.17 (B)

Factor Loadings. I 0.37 III 0.30 IV -0.57

This item has a satisfactory correlation with total score, even though it has sizeable loadings on three factors, the largest being on factor IV, sex stereotype. As previously indicated, this is largely due to the sexually stereotyped girls low rating on this item. This is in part confirmed by the boys relative superiority on this item.

Both the mean and the standard deviation are low. Since alternative five is not chosen for boys, and only rarely for girls, some rewriting of the item would be justified.

Item 16 HAPPY ALONE

Item/Total Score Correlation 0.27

Mean 2.35 Standard Deviation 1.14

Difference between male and female means 0.13 (G)

Factor Loadings I -0.24 II -0.66

This is the item with the lowest correlation with total score. This correlation is principally due to its loading on factor II. In fact it

has a negative loading on factor I, one of only two items with this characteristics, the other being item 3 (ADULTDEPEND, loading - 0.02). While the mean and standard deviation are satisfactory, and sex differences in scoring are low, it is difficult to justify the continued inclusion of this item.

It apparently discriminates the passive, withdrawn child from the aggressive, dominating child, rather than the independent from the dependent.

Item 17 MUSICMOVE

Item/Total Score Correlation 0.60

Mean 2.28 Standard Deviation 0.97

Difference between male and female means 0.50 (G)

Factor Loadings I 0.31 II - 0.37 IV -0.51

The item/total score correlation is satisfactory, although the item loads fairly evenly across three factors, with the highest loading on sex typing. The mean is satisfactory, although the standard deviation is somewhat low. The difference between the sexes is significant ($t = 4.08$, $p < .001$).

Exclusion of this item would remove a considerable amount of the differences in scores across sexes, but on other grounds its inclusion seems appropriate.

Item 18 MATLANGFLU

Item/Total Score Correlation 0.61

Mean 2.75 Standard Deviation 1.07

Difference between male and female means 0.15 (G)

Factor Loadings. I 0.44 III 0.41 IV -0.35

This is another of the items having a satisfactory correlation with total score. It is interesting to contrast it with item 15, CONSTRUCT, for the item/total score is identical, and it loads fairly evenly on the same three factors. In this case however, the major loading is on factor I, with a much lower loading on factor IV, and this tends to make it a more useful item. It also shows a similar discrepancy in scores between the sexes, but in this case it favours the girls. If a scale showing no differences in scores between the sexes is required, this item would be less useful.

Item 19 SMALLMUSC

Item/Total Score Correlation 0.64

Mean 1.80 Standard Deviation 1.10

Difference between male and female scores 0.57 (G)

Factor Loadings II - 0.47 IV - 0.56

The high item/total score correlation of this item is due principally to its loading on factors IV and II. This tends to make it a less useful item than if the loading was on the other two factors for reason discussed elsewhere.

Despite a reasonable standard deviation the mean is somewhat low, due principally to the female scores since there is a significantly higher rating of girls ($t = 4.10$, $p < .001$).

Item 20 GROUPJOIN

Item/Total Score Correlation 0.59

Mean 1.73 Standard Deviation 1.05

Difference between male and female scores 0.40 (G)

Factor Loadings I 0.62 II - 0.23

The satisfactory item/total score correlation is accounted for by the loading on factor I, since all other loadings are quite low. This makes the item a very useful one in terms of the construct which it was designed to measure.

Its usefulness is limited by the somewhat low mean, and the significant sexual bias ($t = 2.81$, $p < .01$)

Item 21 SEXROLE

Item/Total Score Correlation 0.38

Mean 2.83 Standard Deviation 1.10

Difference between male and female scores 0.46 (G)

Factor Loadings I 0.13 III - 0.14 IV - 0.67

This item has the second lowest item/total score correlation. It loads principally on factor IV, which it tends to define, and has low loadings on any other factor. It is clear that girls are rated as less stereotyped in their behaviour than boys, but the high mean is a cause for some concern as to the degree of sex typing at this age, even though it is an indication that the item is discriminating satisfactorily, as is the standard deviation.

It is difficult to make a case for the inclusion of this item.

4.14 Validity

Since no other measures of "self-concept as a learner" suitable for the target population exist, it has not been possible to assess the concurrent validity of the scale. Similarly, the predictive validity of the test could not be assessed on the time scale available, although some follow up of the current sample may be possible.

The most helpful approaches to assessing the validity of the scale appear to involve firstly, a consideration of the construct validity of the scale, based principally on the item-total score correlations and the factor analysis; and, secondly, on the relationship between the scale and other well established social-psychological variables.

As has been noted earlier for the BDI administration of the scale, item-total score correlations ranged from 0.27 to 0.68, with 17 items above 0.40, 13 items above 0.50 and 11 items above 0.60. It is obvious then that the items are related to each other in some way, and the factor analysis gives some indication of what the relationships between items are. The two factors accounting for the greatest percentage of total variance I (17.9%) and III (13.3%), appear to load on social facility, willingness to try and knowledge, and independence and intellectual skills respectively. These closely resemble the attributes specified when defining the construct of "self-concept as a learner".

Factor II, which accounts for 12.0% of the total variance (social passivity - aggressive domination) is less obviously related to the construct, as is factor IV (11.7% of total variance), the sexual stereotype factor. There would appear to be some value in omitting some items from the test in order to reduce the weight given to the aggression component of factor II, and the sex stereotyping element of factor IV. The effects of eliminating certain items from the scale on the structure of the scale can be assessed through re analysis of the data, and this will be carried out as soon as computer facilities are available. The dropping from the scale if item 16 (HAPPYALONE) followed by item 9 (PHYSAGRO) should produce a marked change in factor II, and probably in the factor structure as a whole.

With respect to factor IV, the dropping of item 21 might be expected to have a marked effect, but the changes are less predictable because of the other behaviours likely to be associated with the sexually stereotyped child depending upon the ascribed sex of that individual.

While on the grounds of construct validity there are some reasons for optimism, it must be realised that the processes involved have included the description of a theoretical construct, consideration of the behaviours exhibited in a particular behavioural setting by children who have various rankings on this construct, and the construction of items to measure these behaviours. Inter correlations between the items may be due to a tendency by teachers to give similar ratings on items for a variety of other reasons than that the items all measure self-concept as a learner. Some other constructs which could account for the correlations are intelligence, social class, sex and a halo effect, so it is important to consider the possible validity of these alternative explanations.

Correlations between the Peabody Picture Vocabulary Test (PPVT) and BD1 Total was -0.04 ($n = 48$) a surprisingly low figure. The results for the other three administrations were BD2, -0.22 ; BD3, -0.19 ; and BD4, -0.08 , indicating that in each case those with higher I.Q. scores tended to score more highly, but that intelligence as measured by the PPVT could not be considered as an alternative explanation of the data.

Similarly socio-economic status (SES) had low correlations, being BD1, -0.01 ; BD2, 0.12 ; BD3, 0.14 ; and BD4 -0.16 ($n = 46$). In fact the two ratings by the children's teachers are in the opposite direction from that which would be predicted, so SES can be ruled out as a competing explanation. While sex is clearly associated with the rating obtained on the Behavioural Descriptor Scale, since there is a significant difference between the means for boys and girls (for BD1, $t = 3.12$, $n = 224$, $p < .01$), the relatively small difference between the means (4.78) in comparison to the standard deviation (11.98) suggests it is not a sufficient cause for the correlation. However, the difference is large enough, and evenly enough spread across the items, for such differences to be a cause for some concern.

Items on which the girls are rated significantly more highly than boys are 9 (PHYSICALAGRO, difference 0.60, $t = 4.75$, $p < .001$), 19 (SMALLMUSC, 0.57), $t = 4.10$, $p < .001$), 12 (PROBSOLVE, 0.53, $t = 3.41$, $p < .001$), 17 (MUSICMOVE, 0.50, $t = 4.08$, $p < .001$), 21 (SEXROLE, 0.46, $t = 3.27$, $p < .01$), 20 (GROUPJOIN, 0.40, $t = 2.81$, $p < .01$), 6 (RESPECTCHILD, 0.39, $t = 2.29$, $p < .05$) and (SHARES, 0.31, $t = 2.29$, $p < .05$).

This suggests that girls are more accepting of and accepted by their peers, that they are not prone to show physical aggression, that they are more likely to participate in certain skills (cutting, pasting, music and movement), possibly more persistent in problem solving, and less sexually stereotyped. If boys have a superiority it is in the areas of construction toys and climbing, possibly independence and leadership.

However since the boys' scores on the items on which they are more highly rated than the girls do not differ significantly from the girls scores (largest 0.17), the weighting of items to attempt to compensate for differences would not be effective). A good deal of the sex difference would be eliminated if items 1, 9, 16 and 21 were omitted from the scale, as has been considered for other reasons (this would reduce the difference by 1.50 to 3.28), however, such a difference still indicates that some of the intercorrelation of items may be due to a sexual bias within the scale.

This sexual bias may take a number of forms, including the scale using items on which the girls are more favourably evaluated, but which are not associated with self-concept as a learner; that girls do have more favourable self concepts with respect to learning; and that an interaction between the raters themselves all female, and the sex of the subjects is occurring.

The first of these is probably operating among the original 21 items, but if items 1, 9, 16 and 21 are eliminated from the scale, such an argument would be more difficult to sustain. Other contrary evidence would come from girls superiority on item 12 (PROBSOLVE, difference 0.53), although the difference is much smaller on other key "cognitive" items such as 10 (CURIOSITY, 0.05) and item 13 (SHAREKNOW, 0.02).*

* A critical re-appraisal of item 12 (PROBSOLVE) may lead to the conclusion that "withdraws with disgust" is crucial in boys scoring less well.

On the other hand, although good peer relationships are highly valued in the pre-school it is possible that the general superiority of girls in this area is not predictive of a positive self-concept as a learner.

That girls do have a more positive self-concept as learners is not an outrageous suggestion, and might in part account for the general superiority of girls as learners of reading, and in many other of the beginning skills of the primary school.

Again it is not inconceivable that pre-school teachers do tend to rate girls more highly than their actual behaviour would warrant, since they may interpret for example "a wide range" of small muscle activities, and "accepted by the group" in more feminine terms.

Perhaps the most difficult competing explanation to assess is that of a halo effect, here a tendency to make a few objective judgments, and then to use similar ratings in other items because of the global impression thus formed about the child. While such a halo effect is normally relatively unconscious and free from selfish, or self-protecting motives, in this case a desire to produce a consistent rating of a child in order to appear a good rater (or to please the experimenters) may also act in this direction. Only incidental evidence against these possibilities can be advanced. These include the anonymity of the raters so far as those directing the research were concerned (but not in the case of the research assistant), the status of the raters as volunteers (and as trained professionals), and the commonly made remark that it was necessary to observe their pupils for some days in order to complete some items, which clearly implies a rejection of global assessments.

While it truly is difficult to assess the possibility of a halo effect, the use of behavioural descriptors as the basis of rating might be expected to minimise such effects.

It is clear that the validity of the test must remain problematical for some time to come. It is possible that its predictive validity can be assessed using the same sample of children and some widely accepted measure of self-concept such as the Piers-Harris, or perhaps against some aspects of school performance. Its low correlation with intelligence might make it particularly useful as part of a battery for selecting children "at risk" providing it correlates with school performance.

4.2 BEHAVIOURAL CHECKLIST

4.11 Inter-Rater Reliability

Because of the time involved, and because of its peripheral nature with respect to the project as a whole, inter-rater reliability was assessed on only twelve children. The correlation obtained was 0.85, a satisfactory figure, but one that might be raised with further training of raters.

4.12 Inter-Correlations

The correlation between the behaviour checklist (CHECKLIST) and the teachers' first administration of the behaviour descriptor scale (BD1) was - 0.07 with the teachers' second administration (BD4) - 0.06, with the assistants' administration (BD2) - 0.12, and with the research assistants' administration (BD3) - 0.14. These low correlations are not in themselves surprising, since the checklist contained items which were judged to be both negative and positive, which were merely summed without taking account of the sign. They merely indicate that there was a tendency for the checklist to contain more positive than negative items judged in comparison to the behavioural descriptor totals.

A more useful assessment of the checklist would be obtained by considering the correlation between individual items and the behaviour descriptor total, particularly BD1. The results of this analysis are shown in table 4.7.

Table 4.7 Correlation between items on the Behavioural Checklist, and the total score on the Behavioural Descriptor (BD1)

Items	r	Item	r	Item	r	Item	r	Item	r
1	0.03	11	0.01	21	0.06	31	-0.09	41	0.00
2	-0.16	12	-0.04	22	0.11	32	0.12	42	0.10
3	-0.06	13	0.00	23	0.09	33	-0.01	43	0.12
4	0.02	14	0.00	24	0.11	34	-0.07	44	-0.14
5	-0.01	15	0.01	25	0.00	35	0.08	45	0.12
6	-0.12	16	0.00	26	0.09	36	0.07	46	-0.10
7	0.08	17	-0.12	27	0.08	37	-0.07	47	-0.06
8	0.04	18	0.08	28	-0.11	38	0.14	48	-0.02
9	-0.04	19	-0.09	29	-0.07	39	-0.04	49	-0.22
10	0.02	20	0.00	30	-0.08	40	0.04	50	0.05

Clearly the correlations are unsatisfactory, with only one above .2, and only thirteen at or above .1. These low correlations may be due to weaknesses in the behaviour descriptor scale, or the behavioural checklist, or a combination of weaknesses. The most likely explanation is the comparatively short period of time (40 minutes) over which the behaviours were sampled, resulting in a low number of events being recorded (average 15.43 per child) with item frequencies varying from zero (PUSHADULT, HEADBANG) to 314 (PARAPLAY) across 212 subjects, and with a possibility of any event being recorded 424 times, representing an actual to potential ratio of 0.74. Some support for the importance of this factor is given by the fact that the mean occurrence per subject of the 15 behaviours correlating .10 or higher with BD1 total was 0.39, as opposed to a mean of 0.31 for the total 50 items, and 0.29 for the remaining 35. It is interesting to note however that the negative items (those having a positive correlation with BD1 total) in some cases have correlations of above .10 though the item is seldom scored (e.g. item 24, THUMBSUCK, mean score 0.01 (scored only three times), correlation 0.11; and item 43, MISUSEQUIP, mean score 0.02 (scored only five times), correlation 0.12).

While the results from the behavioural checklist are disappointing, a computer re-analysis in which a checklist total is based on a signed summing of the 15 items correlating most strongly with BD1 total might give a more realistic assessment of the scale.

4.3 PROJECTIVE SCALE

Thirty four children were evaluated using this scale. No retesting was carried out, nor was inter-rater reliability assessed.

4.31 Inter-correlations

Two analyses are useful here, the correlation of each of the projective items with the total projective score, and the item and total scores with the BD totals. These results are shown in table 4.8.

Table 4.8 Correlation between the PS items and total score,
and the BD total (n = 34)

Item	r total	r BD 1	r BD 2	r BS 3	r BD 4
1	0.33	- 0.16	- 0.20	- 0.42	- 0.35
2	0.55	- 0.48	- 0.45	- 0.51	- 0.36
3	0.04	0.11	- 0.11	0.16	- 0.29
4	- 0.02	- 0.09	0.22	0.02	- 0.04
5	0.43	0.01	- 0.13	- 0.04	0.06
6	0.25	0.06	0.08	0.05	0.10
7	0.46	0.28	0.27	0.10	0.33
8	0.27	- 0.29	- 0.18	- 0.49	- 0.19
9	0.30	- 0.14	- 0.30	- 0.27	- 0.12
10	0.25	0.31	0.25	0.17	0.17
11	0.37	- 0.18	- 0.18	- 0.32	- 0.32
12	0.21	- 0.28	- 0.33	- 0.40	- 0.35
13	0.15	0.07	0.15	- 0.07	0.12
14	0.10	- 0.15	- 0.23	- 0.13	- 0.14
15	0.31	- 0.15	- 0.20	- 0.25	- 0.16
16	0.39	0.10	0.24	- 0.10	0.01
17	0.19	0.26	0.24	0.10	0.44
18	0.28	- 0.13	0.02	- 0.24	- 0.21
19	0.42	0.10	- 0.10	- 0.15	0.08
20	0.34	- 0.22	- 0.21	- 0.23	- 0.18
21	- 0.02	- 0.08	- 0.04	0.11	- 0.03
22	0.10	- 0.17	- 0.11	0.09	- 0.02
Total		- 0.23	- 0.25	- 0.50	- 0.17

r = 0.31 p = < .05

r = 0.48 p = < .01

The correlation between the projective scale total and the BD1 totals range from - 0.17 to - 0.50 with a mean of - 0.29. These figures indicate that the scale as a whole is not measuring the same attributes as the behavioural descriptor scale. However, the low correlation is not surprising when the correlations between the individual items and the total score are considered. These range from -0.02 to 0.55 with a mean of 0.26.

Two criteria for the selection of appropriate items may be used, these are a positive correlation with the total projective score, and a negative correlation with the BD totals. Naturally, the larger the correlations, and the more consistently they are found, the more appropriate would the item appear to be. Since the total score on the projective test is contributed to by some items which correlate negatively or to a very low extent with that score, and because the item itself contributes to the score the correlations with the BD totals are probably the more reliable indicators.

If a criterion for selection of a positive correlation with the projective total, and a negative correlation for each of the BD totals is set nine of the twenty two items appear appropriate (numbers 1, 2, 8, 9, 11, 12, 14, 15 and 20). These items have a mean correlation with the projective total of 0.31 and with the BD totals of - 0.26. These are raised to 0.34 and - 0.27 if item 14 is not included. The only other items which show consistent correlations of a suitable magnitude with the BD totals are items 7, 10 and 17, and these correlations are positive, as are their correlations with the projective total. It would be possible to score these items in the opposite direction, and since the projective total would be calculated in a different manner, the item - total correlation might still remain positive.

Thus although the results are somewhat disappointing, a re-analysis of the data using the existing scores could improve the predictive power of the projective scale with respect to the behavioural descriptor scale.

The scale might be further assessed if other measures of self-concept as a learner or measures of scholastic performance were obtained for the same subjects, or rewriting of some of the existing items which appeared unsuitable might increase the number of items in the scale.

The somewhat higher correlations between the PS and BD3 scores is interesting, since these were two of the administrations which were carried out by persons other than the staff of the pre-school. Why this relationship should be found is not clear, but a possible explanation is that the external raters are less influenced by halo effects.

The three scales developed differ considerably in their approach towards the measurement of self-concept as a learner.

The effectiveness of the scales as assessed in the current project are similarly diverse. In terms of internal consistency the behavioural descriptor (BD) scale was satisfactory, and it also showed suitable test-retest reliability, and inter-rater reliability. No really effective means of assessing its validity existed, but those indications which were available tended to rule out some of the competing alternatives to account for the sizeable correlations noted above.

No measures of test - retest reliability were available for either the behavioural checklist (BC) or the projective scale (PS), and inter-rater reliability was available only for the BC. This figure was satisfactory. However, internal consistency measures were unsatisfactory for both of these scales, particularly for the BC, but this is not surprising in the case of the BC because no attempt to score items in terms of their presumed relationship to self concept as a learner was made.

When assessed according to the ability to predict the total score on one or more of the BD administrations there were few items on the BC which even showed promise, and it is problematical whether further development of this instrument is justified. However, if more data is collected with a view to further assessment of the other two scales, inclusion of the BC items in any re-analysis of the data may be worthwhile.

The PS scale, however, had a sufficient number of items which correlated with the BD totals to make further development of this instrument appear worthwhile.

Further development might take any or all of three forms.

Firstly, the data which is currently stored in a form directly readable by a computer, could be reanalysed in line with suggestions listed in chapter 4. This re-analysis need only wait upon the principal investigator having access to the Canberra College of Advanced Education computer, and need not involve any additional funds if the present costing arrangements for staff use of the computer are continued.

The second method would involve the following up of the children who were the subjects of the current research. Additional data concerning them could be collected, and the predictive validities for the scales, and individual items, could be assessed. Additional data might include current assessments of their self concepts as learners, more global measures of self-concept, and their scholastic achievement.

The third method would consist of the rewriting of some of the existing items, or the writing of new items, a further administration of the scale to a group of children, followed by statistical analysis.

These last two possibilities would require the availability of additional resources through a research grant, or through the co-operation of the research section of a teaching authority, or some other research group.

These three avenues of development are aimed at making the scales suitable for research purposes. Their use in wider contexts would imply their administration to a larger, more representative sample as a basis for the construction of norms.

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CANBERRA SELF CONCEPT AS A LEARNER SCALE
(EXPERIMENTAL FORM)

IDENTIFYING DATA

FAMILY NAME OF CHILD

GIVEN NAMES

DATE OF BIRTH

SEX

PRE-SCHOOL

TEACHER

DATE OF COMPLETION OF SCALE

APPENDIX A

INSTRUCTIONS FOR COMPLETION

1. Please complete all questions.
2. Place a cross in the one alternative which best describes the child for each question.

1. RESPONDS POSITIVELY TO ADULTS

1. Actively seeks adult company. ☐
2. Accepts adults and enjoys their company. ☐
3. Tolerates adults but does not seek their presence. ☐
4. Ignores adults' presence. ☐
5. Shows fear of adults - e.g. runs away. ☐

2. WHEN FREE TO CHOOSE ACTIVITIES

1. Is totally independent. ☐
2. Seldom seeks adult guidance. ☐
3. Does seek help when unsure of choice. ☐
4. Most of the time seeks help. ☐
5. Always seeks help. ☐

3. DEPENDENCE UPON ADULT APPROVAL

1. Welcomes adult approval but rarely seeks it. ☐
2. Seeks approval when product completed. ☐
3. Occasionally seeks approval. ☐
4. Needs approval most of the time. ☐
5. Unable to proceed with an activity unless adult approval is given. ☐

4. CAN ASSUME BOTH LEADER AND FOLLOWER ROLE IN GROUP SITUATIONS:

1. Frequently initiates activities that others join, but also follows. ☐
2. Sometimes initiates activities, but is usually a follower. ☐
3. Rarely initiates activities, but frequently joins peer initiated activities. ☐
4. Attempts to initiate activities, but rarely joins others activities. ☐
5. Never initiates activities that others join, very rarely joins others activities. ☐

5. WILLINGLY SHARES AND TAKES TURNS

1. Shares well. Occasionally offers first turn or choice to others. ☐
2. Shares and takes turns well but doesn't take the initiative to offer. ☐
3. Will share and take turns most of the time. ☐
4. Will share and take turns most of the time, when being encouraged. ☐
5. Refuses to share. ☐

6. RESPECT FOR OTHER CHILDREN

1. Spontaneously appreciates and praises other children's work. ☐
2. Praises other children's work when encouraged to do so. ☐
3. Shows little response to other children's work. ☐
4. Belittles other children's work. ☐
5. Interferes with other children's activities. ☐

7. DEFENDS OWN RIGHTS

1. Rationally, advances reasons for having own way. ☐
2. Typically defends own rights with verbal threat. ☐
3. Sometimes uses verbal threat and sometimes physical force. ☐
4. Typically uses physical force. ☐
5. Cannot stand up for himself - gives in as easiest course of action. ☐

8. SEPARATION FROM CAREGIVER

1. Always (after the first few sessions) enters building willingly and calmly. ☐
2. Usually enters building willingly and calmly. ☐
3. Usually enters building willingly and calmly provided teacher contact is established. ☐
4. Sometimes upset and reluctant, but settles quickly. ☐
5. Is often upset and slow to settle. ☐

9. USE OF PHYSICAL AGGRESSION

1. Rarely uses physical force against others. ☐
2. Occasionally uses physical force when provoked. ☐
3. Occasionally provokes physical aggression. ☐
4. Frequently uses unprovoked physical aggression. ☐
5. Sometimes needs to be isolated from the group because of the degree of aggression. ☐

10. IN NOVEL SITUATIONS

1. Shows curiosity. ☐
2. Shows curiosity but in a limited range of situations. ☐
3. Sometimes shows curiosity through listening and watching. ☐
4. Shows curiosity only after adult effort. ☐
5. Does not show curiosity even after adult effort. ☐

11. IN TERMS OF THE VARIETY OF MOTOR ACTIVITIES ATTEMPTED

1. Performs a wide variety of indoor and outdoor activities. ☐
2. Performs a restricted range of indoor and outdoor activities. ☐
3. Performs a wide range of activities in one area, and will perform in the other area with encouragement. ☐
4. Performs a range of activities in one area, but resists encouragement to try in the other area. ☐
5. Performs a very restricted range of activities in only one area. ☐

12. WHEN FACED WITH A PROBLEM THE CHILD HABITUALLY

1. Attempts a solution, seeks assistance to enable him to solve the problem independently. ☐
2. Attempts a solution, seeks assistance and jointly solves the problem. ☐
3. Attempts a solution, then withdraws happily. ☐
4. Attempts a solution, then withdraws with disgust. ☐
5. Does not attempt a solution. ☐

13. SHARING KNOWLEDGE WITH OTHERS

1. Frequently advances relevant information in conversation with others. ☐
2. Can supply relevant information when encouraged to do so. ☐
3. Only supplies relevant information in response to a direct question. ☐
4. Seldom advances relevant information. ☐
5. Never advances relevant information. ☐

14. IN USING THE CLIMBING APPARATUS

1. Does so spontaneously showing no fear. ☐
2. Attempts on most occasions, knows his own limits. ☐
3. Attempts with constant help, e.g. hand holding while climbing. ☐
4. Attempts with reluctance. ☐
5. Fearful, avoids the apparatus. ☐

15. IN THE USE OF CONSTRUCTION EQUIPMENT

1. Initiates new activities. ☐
2. Copies new activities initiated by others. ☐
3. Sticks to a few activities only. ☐
4. Needs encouragement to use equipment. ☐
5. Refuses to use equipment. ☐

16. CAN BE HAPPY ALONE

1. Often when occupied in own activities. ☐
2. Mostly, but sometimes distracted by others. ☐
3. Can play alone, while continuing to show interest in what others are doing. ☐
4. Seldom plays alone. Quickly loses interest in own task. ☐
5. Acts aggressively to maintain contact when others want to leave activity. ☐

17. IN TERMS OF MUSICAL AND MOVEMENT ACTIVITIES

1. Actively seeks out such activities. ☐
2. Willingly joins in such activities. ☐
3. Joins such activities reluctantly if otherwise occupied. ☐
4. Joins such activities reluctantly though not otherwise occupied. ☐
5. Refuses to join such activities. ☐

18. UTILIZATION OF EQUIPMENT MATERIAL AND LANGUAGE IS CHARACTERIZED BY

1. Confident flexible use, actively seeking unconventional combinations. ☐
2. Occasionally unconventional but fluent and confident. ☐
3. Conventional, fluent and confident use. ☐
4. Conventional use with limited confidence. ☐
5. Restricted, inflexible use and lack of confidence. ☐

6.

19. IN TERMS OF SMALL MUSCLE ACTIVITIES (E.G. CUTTING, THREADING, MANIPULATING)

1. Spontaneously uses a wide range. ☐
2. Spontaneously uses a limited range. ☐
3. Uses these as part of another activity. ☐
4. Uses these reluctantly, relying on adult encouragement. ☐
5. Uses these rarely, even with adult help. ☐

20. WHEN TRYING TO JOIN A GROUP INVOLVED IN AN ACTIVITY THIS CHILD

1. Is nearly always accepted by all children. ☐
2. Is nearly always accepted by the group after some disagreement. ☐
3. Is sometimes accepted, and sometimes not. ☐
4. Is occasionally accepted. ☐
5. Is only accepted after adult intervention. ☐

21. WHEN FREE TO CHOOSE ACTIVITIES THIS CHILD

1. Adopts an opposite sex role spontaneously. ☐
2. Will adopt opposite sex role under some peer or adult pressure. ☐
3. Will play in mixed sex groups, but not adopt opposite sex roles. ☐
4. Rarely plays with children of the opposite sex. ☐
5. Never chooses tasks "appropriate" to the opposite sex. ☐

SCHOOL OF TEACHER EDUCATION
SELF CONCEPT AS A LEARNER - BEHAVIOURAL CHECK LIST

A. PHYSICAL ACTIVITY

1. Climbed on a piece of apparatus to above 1 metre
2. Balanced on a narrow piece of apparatus without support
3. Balanced on a narrow piece of apparatus with support
4. Rode on a wheeled toy
5. Swung by arms from a suitable support
6. Swung in a swing of some sort
7. Performed energetic locomotor play, e.g. running
8. Exhibited poor motor co-ordination, e.g. clumsiness

B. CREATIVE/EXPLORATIVE BEHAVIOUR

1. Did a painting
2. Produced an art object other than a painting
3. Produced a craft object, including playdough
4. Spontaneously indulged in a music making activity including singing
5. Joined a music making activity, including singing
6. Built a "tower" from blocks
7. Built another object from blocks
8. Used another construction toy, e.g. Lego
9. Indulged in water play or other messy play
10. Played in the sandpit or digging pit
11. Used equipment inventively
12. Used toys stereotypically

C. SOLITARINESS

1. Engaged in solitary play
2. Engaged in onlooker behaviour
3. Was unoccupied for 3+ minutes
4. Showed signs of thumbsucking, nail biting, hair chewing crying, etc.
5. Showed signs of resturbation, head banging, withdrawn rocking, etc.

TESTER :

CHILD :

DATE :

D. POSITIVE SOCIAL INVOLVEMENT

1. Indulged in parallel play
2. Indulged in associative play
3. Indulged in co-operative play
4. Engaged a child/children in conversation
5. Engaged an adult in conversation
6. Showed his/her work to an adult
7. Approached an adult for assistance
8. Approached an adult for approval
9. Demonstrated physical affection towards another child
10. Demonstrated physical affection towards an adult

E. AGGRESSION

1. Used verbal aggression against another child
2. Used verbal aggression against an adult
3. Physically threatened another child
4. Physically threatened an adult
5. Pushed, poked, struck or kicked another child
6. Pushed, poked, struck or kicked an adult
7. "Broke-up" another child's activity
8. Misused, damaged or destroyed some equipment

F. LEADERSHIP

1. Led a "group" in an activity
2. Had a friend whose activities were copied
3. Had a friend who copied his/her activities

G. SEX ROLE STEREOTYPE

1. Chose activities usually associated with opposite sex
2. Chose activity strongly stereotypical of own sex

H. PERSISTENCE

1. Persisted in an activity for approx. 10 minutes or more
2. Did not sustain interest in any activity for 3+ minutes

APPENDIX B

J.R. Clough
14 June 1978

CANBERRA COLLEGE OF ADVANCED EDUCATION .

SCHOOL OF TEACHER EDUCATION

Revised Projective Self-Concept Test

Instructions : Here are two puppets. We are going to pretend that they are children at pre-school. We will say some things about each puppet, and will ask you to tell us which one is more like you. Do you think you can do that? So, we might say that this child likes eating ice-cream, and this child doesn't like ice-cream, which one is more like you?

REVISED PROJECTIVE SELF-CONCEPT TEST

- a) This child likes to watch television a lot. ☐
- This child likes to play outside a lot ☐
1. This child hits or pushes other children a lot. ☐
- This child sometimes hits or pushes other children. ☐
2. This child doesn't mind other children playing with his/her toys. ☐
- This child doesn't like other children playing with his/her toys. ☐
3. This child can do hard things on his/her own. ☐
- This child likes someone to help him/her do hard things. ☐
4. When someone grabs a toy from this child he/she tries to get it back. ☐
- This one doesn't try to get it back. ☐
5. This child doesn't like coming to pre-school without his/her mother/father/minder. ☐
- This child doesn't mind coming to pre-school by him/herself ☐
6. This child always knows what he/she wants to do at pre-school. ☐
- This child likes to ask grown-ups what he/she should do at pre-school. ☐

7. This child is good at cutting, pasting and threading. ☐
- This child doesn't like to cut or paste or thread. ☐
8. This child doesn't like to play with the building toys. ☐
- This child likes to make new things out of the building toys. ☐
9. This child likes to dance and sing at pre-school ☐
- This child doesn't like to join in dancing and singing very much. ☐
10. This child likes to do different things every day at pre-school. ☐
- This child likes to do the same things every day at pre-school. ☐
11. Sometimes this child can't find anyone to play with at pre-school. ☐
- This child can always find a friend to play with at pre-school. ☐
- 12a. This boy sometimes likes to dress up in the girl's clothes at pre-school when he is in the doll's corner. ☐
- This boy only likes to dress up in the boy's clothes when he is at pre-school. ☐
- 12b. This girl sometimes likes to dress up on the boy's clothes at pre-school when she is in the doll's corner. ☐
- This girl only likes to dress up in the girl's clothes when she is at pre-school ☐
13. This child doesn't like playing on the climbing equipment. ☐
- This child is a good climber on the climbing equipment. ☐
14. This child likes to be the first to play with new toys at pre-school. ☐
- This child likes to watch other children play with the toys first. ☐
15. This child likes to do things with grown-ups a lot. ☐
- This child likes to do things with grown-ups some of the time. ☐

16. This child doesn't mind if he/she isn't the boss of the game. ☐
- This child doesn't like to play games unless he/she is the boss. ☐
17. When this child's friend does a good painting, this child tells him. ☐
- When this child's friend does a good painting, this child doesn't tell him. ☐
18. This child likes to paint things he/she is good at. ☐
- This child likes to do paintings of new things every day. ☐
19. This child likes to help other people do hard things. ☐
- This child doesn't like to help other people do hard things. ☐
20. This child does good things because he tries hard. ☐
- This child does good things when his/her teacher helps him/her. ☐
21. This child doesn't mind if grown-ups don't look at the things he has done. ☐
- This child always likes to show grown-ups what he/she has done. ☐
22. This child likes to play on his/her own at pre-school. ☐
- This child likes to play with other children at pre-school. ☐

SELF-CONCEPTS AND SCHOLASTIC SUCCESS

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*A PAPER PRESENTED TO THE ANNUAL CONFERENCE
OF THE AUSTRALIAN ASSOCIATION OF
EARLY CHILDHOOD EDUCATORS,
CANBERRA, MAY 1975.*



PS 011 527

Success at school is still an important determinant of one's life style. Failure to meet the expectations of the educational system leads to exclusion from a number of desirable occupations, and may also lead to an inability to enjoy certain leisure activities, to anti-intellectual attitudes and feelings of inadequacy and inferiority.

In a previous age lack of success would have led to situations which were physically painful for the child, but today would be more likely to involve frustration, boredom and psychological pressures of various kinds.

One may ask why children fail at school, in order that whatever steps are possible may be taken to avoid or alleviate these influences.

There are a whole range of influences over which we as yet have little control. Most obvious are genetic factors, with the intra-uterine, birth, and peri-natal periods being the most crucial. It is certainly true of the intra-uterine period that when an organ or an organism is developing most rapidly, then that organism is most susceptible to dysgenic influences. Some theorists (eg. Erikson, 1965) also take the view that when the organism, and here we are talking of children, enter the "booming, buzzing confusion" of the world, then their earliest experiences will be the most crucial.

I think one could argue that this was true in the sense of the first months or years of life, but equally true of the first months or years of school. Erikson (1965) speaks of the "sense of trust" as the basic requirement of a healthy personality, and Bowlby (1951) although under attack from such sources as Rutter (1972) has asserted the crucial nature of the mother child relationship especially between six and thirty-six months.

The compensatory education movement can be interpreted as an attempt to promote cognitive development and other related skills prior to the child's entry to school. This is exemplified in the work of Bereiter and Engelmann (1966), but can be found in numerous other studies (Gray, 1971; Gray and Klaus, 1970; Karnes, Teska and Hodgins, 1970; Karnes, Teska, Hodgins and Badger, 1970; Weikart, 1969) all of which are reviewed in Clough (1972).

Certainly the best of these programmes have been highly successful in producing spectacular gains in cognitive and scholastic skills, but there have been several limitations on these effects. The first is the ephemeral nature of such gains, with children undergoing such programmes being virtually indistinguishable from their equally disadvantaged peers after two to three years of schooling.

A second criticism has focussed on the extent to which the programmes have tried to teach tasks alien to the child's background, and have led to a denial of the child's own culture and judgments about the irrelevance of the child's experiences outside the school.

Another important limitation concerns the almost negligible effects on the personality development of the children. Even short term effects have been rare. This may in part be due to the difficulty in measuring personality, but may also be due to a lack of focus on this aspect of development.

It is this criticism which I wish to take up and develop, for there is a growing body of evidence that personality factors and in particular the child's self concept, may be an important mediating variable in the child's achievement, and eventually his life satisfaction.

Evidence concerning the relationship between self-concepts and performance come from a variety of sources, three of which are the clinical insights of therapists, the literature on self-fulfilling prophecies and recent research on locus of control.

Those who are remedial reading teachers will be aware of the negative attitudes towards reading held by their clients. Such children often express the attitude that they are incapable of learning to read, but also assert that reading is a waste of time, that it is not a logical process, and that they do not want to learn to read. Half the problem is solved when these defences are removed and positive attitudes develop.

Rosenthal and Jacobson (1968) produced the best known work on the effect of teacher expectations, reporting that in their studies children selected randomly and nominated to teachers as potential intellectual spurters did in fact gain more on intelligence tests than their classmates. This study has been severely criticised on methodological grounds (Thorndike, 1968), Rosenthal's ability as a researcher has been challenged (Barber and Silver, 1968) and attempts to replicate the results (eg. Fleming and Anttonen, 1971) have failed. On the other hand some studies (eg. Palardy, 1969) have supported Rosenthal and Jacobson's original work. Pidgeon (1970) provides a useful review of some of this work.

Two final comments I should like to make about the teacher expectation effect is that in the original study it was virtually only in the first two grades that it operated, and that teacher expectation effects might be expected to operate only on some occasions, and that thus a failure to replicate is not so crucial as it would be in other cases.

The locus of control studies have identified a continuum from an internal locus of control to external locus of control. Those who fall at the internal end of the continuum believe that success in a wide range of tasks is due to personal effort, while those at the external end believe that success is more governed by luck. These orientations have been shown to be in existence prior to school entry, to be relatively stable, and an internal locus of control is associated with high scholastic achievement, and is negatively correlated with delinquency and a number of other negative behaviours.

A study by Clifford and Cleary (1972) found a correlation of 0.43 between their measure of locus of control and scholastic performance, in contrast to a correlation of 0.53 between I.Q. and scholastic achievement in their fourth-, fifth- and sixth-grade pupils of both sexes. Thus, in this particular case, their measure of self-concepts was almost as good a predictor of performance as intelligence.

Of course, one can get into the chicken and egg situation very easily in the self-concept area, and there would appear to be no argument against the proposition that at some point achievement, as well as positive attitudes about one's ability to achieve is necessary, but it does seem important to point out that :

- a) Positive attitudes towards oneself are important, (eg. Rogers, 1969).
- b) That ultimately higher levels of scholastic achievement may be reached by making the development of positive self-concepts a prime aim as opposed to making scholastic achievement the major early emphasis.

This latter proposition is not meant to imply that genuine learning is not a legitimate way to establish positive self-concepts, but merely implies that a different emphasis may be required in certain cases.

Having established a sound theoretical basis for considering that the development of positive self-concepts may be an appropriate initial aim for education, I want to outline what I consider to be a worthwhile research project in this area, and report on progress to date.

It appears important to distinguish three possible influences on the child's self-concepts, the home, the pre-school and the infants classes of the primary school.

The home would be considered to be the most important influence on the child's self-concept, both because of the primacy of its influence, because of its continuity over time, and also because of its relative consistency of influence. However, one might wish to distinguish between self-concept as a scholastic achiever, and self-concept in general; and the pre-school and the infants' classes may be more crucial for self-concept as a scholastic achiever.

In addition, the impact of the pre-school and infants' classes on the general self-concept may be extremely important.

At this stage it is proposed to commence the measurements of self-concepts at the pre-school stage, to consider changes within the pre-school year, and to investigate the impact of the primary school, and particularly the infants' classes on self-concepts.

Now the major problem is the lack of suitable scales for the measurement of self-concepts. After considerable discussion we decided to develop a rating scale for use by the children's pre-school teachers, a scale which contained the following 25 items (Appendix A).

The main instructions were : "Assign a rating from 1 (low) to 5 (high) on each of the 25 items to each child. A 1 rating would imply that the child was in the lower 20% on this attribute in comparison to other children of the same age, a 2 in the next 20% and so on."

To date the rating scale has been administered by eight pre-school teachers and their assistants, with over seventy protocols being completed. Each of the twenty-five items has consistently discriminated between those rating low on the test as a whole, and those falling at the top end (item analysis chi square values have ranged between 16.2 and 40.0, p being less than .01 in each case).

Thirteen children were independently scored by more than one rater and inter-rater reliability was high at 0.93 ($p < .01$).

Seventeen children were re-scored by the same rater after approximately three months. A correlation of 0.74 ($p < .01$) was found in this case.

While this figure is in itself quite a satisfactory one, several of the raters indicated that their subjects had changed quite considerably in the intervening period, and predicted that the scores would differ in a particular direction. These predictions were confirmed.

However, these predictions might be confirmed because of changes in the raters perceptions rather than changes by the child, and as such would represent an error factor in the test.

The alternative of changes by the child are however feasible, given the lability of children's emotions at this stage of their development.

Another method of measuring self-concepts by using a pair of identical dolls similarly to the "It Technique" is being developed. Favourable and unfavourable statements are attributed to the dolls, and the child is asked which is more like him/her. Much more work is required in order to test the effectiveness of this method.

With the development of the measuring device it is now possible to study the effect of the pre-school, on the child's self-concepts. It is also possible to consider the effect of different teacher styles on self-concepts at the pre-school level. If this possibility is developed it will be necessary to use external raters, and so it will be important to establish the reliability of the device under these circumstances.

Two further possible avenues for development are to focus on the two transition periods, from the home to pre-school, and from pre-school to infants.

The latter possibility is both the more interesting and the more feasible. It would appear necessary that additional measures of self-concepts would be required if children above the commencing grade of infants' school are to be studied. These may be along similar lines to those already developed, but may also be along the lines of the discrepancy between ideal-self and perceived-self common in the literature.

However, if the study were to cease at the level of considering what changes do occur, or even at the level of relating teaching style to changes in self-concepts; then it would hardly be worthwhile. What is required, and is the aim of this study, would be to consider the effect of teachers focussing on self-concept development as the initial aim of education, and studying the effect of teacher behaviours in pursuit of this aim on self-concept development in the child, and the rate of development, and level of development of scholastic skills.

This would require a longitudinal study of some magnitude, since a number of teachers would need to be involved if generalizations beyond the study population were to have validity.

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2.

SOCIAL INTERACTION WITH ADULTS

Responds positively to adults.

1	2	3	4	5
---	---	---	---	---

Confidently seeks assistance from adults when necessary.

1	2	3	4	5
---	---	---	---	---

When choosing activities is not overdependent on adults.

1	2	3	4	5
---	---	---	---	---

Does not require constant approval or attention from adults.

1	2	3	4	5
---	---	---	---	---

Is not overly submissive in the presence of adults.

1	2	3	4	5
---	---	---	---	---

SOCIAL INTERACTION WITH PEERS

Defends own rights.

1	2	3	4	5
---	---	---	---	---

Willingly shares and takes turns.

1	2	3	4	5
---	---	---	---	---

Respect for property and possessions of group and individuals.

1	2	3	4	5
---	---	---	---	---

Can assume both leader and follower role in group situations.

1	2	3	4	5
---	---	---	---	---

Is consistently popular with peers.

1	2	3	4	5
---	---	---	---	---

3.

EMOTIONAL MATURITY

11. Can be happy alone.

1	2	3	4	5
---	---	---	---	---

12. Shows tenacity and perseverance.

1	2	3	4	5
---	---	---	---	---

13. When frustrated, does something positive, for example seeks assistance, chooses another activity, etc.

1	2	3	4	5
---	---	---	---	---

14. Does not show excessive verbal aggression.

1	2	3	4	5
---	---	---	---	---

15. Does not show excessive physical aggression.

1	2	3	4	5
---	---	---	---	---

PHYSICAL DEVELOPMENT

16. Is prepared to attempt new physical skills.

1	2	3	4	5
---	---	---	---	---

17. Participates in music making activities.

1	2	3	4	5
---	---	---	---	---

18. Is not afraid to use climbing apparatus.

1	2	3	4	5
---	---	---	---	---

19. Participates in rhythmic activities.

1	2	3	4	5
---	---	---	---	---

20. Uses a wide variety of indoor and outdoor equipment.

1	2	3	4	5
---	---	---	---	---

INTELLECTUAL DEVELOPMENT

1. Shows curiosity in a wide range of activities.
2. Uses equipment and materials creatively.
3. Combines ideas imaginatively and expresses them verbally.
4. Understands the difference between fact and fantasy.
5. Actively seeks solutions to intellectual problems.

1	2	3	4	5
---	---	---	---	---

1	2	3	4	5
---	---	---	---	---

1	2	3	4	5
---	---	---	---	---

1	2	3	4	5
---	---	---	---	---

1	2	3	4	5
---	---	---	---	---

Additional Comments:

Child's Name

Date of Birth

Date of Entry to Pre-School

CANBERRA SELF CONCEPT SCALE

Instructions for Completion.

1. Please complete all 25 items. There is a space for additional comments if these are felt necessary.
2. Assign a rating from 1 (low) to 5 (high) on each of the 25 items to each child.

A 1 rating would imply that the child was in the lower 20% on this attribute in comparison to other children of the same age, a 2 in the next 20% and so on.